

vConverter® 5.1.1

User Guide

**© 2011 Quest Software, Inc.
ALL RIGHTS RESERVED.**

This guide contains proprietary information protected by copyright. The software described in this guide is furnished under a software license or nondisclosure agreement. This software may be used or copied only in accordance with the terms of the applicable agreement. No part of this guide may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording for any purpose other than the purchaser's personal use without the written permission of Quest Software, Inc.

The information in this document is provided in connection with Quest products. No license, express or implied, by estoppel or otherwise, to any intellectual property right is granted by this document or in connection with the sale of Quest products. EXCEPT AS SET FORTH IN QUEST'S TERMS AND CONDITIONS AS SPECIFIED IN THE LICENSE AGREEMENT FOR THIS PRODUCT, QUEST ASSUMES NO LIABILITY WHATSOEVER AND DISCLAIMS ANY EXPRESS, IMPLIED OR STATUTORY WARRANTY RELATING TO ITS PRODUCTS INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. IN NO EVENT SHALL QUEST BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE, SPECIAL OR INCIDENTAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS, BUSINESS INTERRUPTION OR LOSS OF INFORMATION) ARISING OUT OF THE USE OR INABILITY TO USE THIS DOCUMENT, EVEN IF QUEST HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Quest makes no representations or warranties with respect to the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Quest does not make any commitment to update the information contained in this document.

If you have any questions regarding your potential use of this material, contact:

Quest Software World Headquarters

LEGAL Dept

5 Polaris Way

Aliso Viejo, CA 92656

www.quest.com

email: legal@quest.com

Refer to our Web site for regional and international office information.

Patents

This product includes patent pending technology.

Trademarks

Quest, Quest Software, the Quest Software logo, AccessManager, ActiveRoles, Aelita, Akonix, Benchmark Factory, Big Brother, BridgeAccess, BridgeAutoEscalate, BridgeSearch, BridgeTrak, BusinessInsight, ChangeAuditor, CI Discovery, Defender, DeployDirector, Desktop Authority, Directory Analyzer, Directory Troubleshooter, DS Analyzer, DS Expert, Foglight, GPOAdmin, Help Desk Authority, Imceda, IntelliProfile, InTrust, Invirtus, iToken, JClass, JProbe, LeccoTech, LiteSpeed, LiveReorg, LogAdmin, MessageStats, Monosphere, NBSPool, NetBase, NetControl, Npulse, NetPro, PassGo, PerformaSure, Point, Click, Done!, Quest vToolkit, Quest vWorkSpace, ReportAdmin, RestoreAdmin, ScriptLogic, SelfServiceAdmin, SharePlex, Sitraka, SmartAlarm, Spotlight, SQL Navigator, SQL Watch, SQLab, Stat, StealthCollect, Storage Horizon, Tag and Follow, Toad, T.O.A.D., Toad World, vAutomator, vConverter, vEcoShell, VESI, vFoglight, vPackager, vRanger Pro, vSpotlight, vStream, vToad, Vintela, Virtual DBA, VizionCore, Vizioncore vAutomation Suite, Vizioncore vEssentials, Vizioncore vWorkflow, WebDefender, Webthority, Xaffire, and XRT are trademarks and registered trademarks of Quest Software, Inc in the United States of America and other countries. Other trademarks and registered trademarks are property of their respective owners.

User Guide February 2011 vConverter 5.1.1

Table of Contents

Introduction to this Guide	7
About vConverter	8
About this Guide	8
vConverter Documentation Suite	9
Core Documentation Set	9
Feedback on the Documentation	9
Text Conventions	10
About Quest Software, Inc.	10
Contacting Quest Software	11
Contacting Quest Server Virtualization Support.....	11
 vConverter Functional Overview	 12
vConverter Overview	13
vConverter Architecture	13
Conversion Process	17
Windows P2V	17
Linux P2V	19
Windows V2P	21
Features and Functions.....	23
P2V for Windows Servers	23
P2V for Linux Servers	23
V2P for Windows Servers	23
Virtual Appliances Components for VMware vMA.....	23
Hot Conversions.....	24
Cold Conversions	24
Remote Cold Cloning	24
Continuous Protection Mode	25

Synchronized Cutover	25
Different Destinations Cutover	26
64k Alignment	26
Support for RDM	26
Task Folders	27
Task Profiles	27
User Profiles	27
Live Log	27
Disable Task Running	28
vConverter User Interface	29
User Interface Overview	30
Menus	31
File	32
Tasks	32
View	33
Tools	33
Help	33
Toolbars	34
Main Toolbar	34
Task List	35
Conversion Tasks Pane	37
Properties	37
LiveLog	38
Scheduler	38
Statistics	39
Conversion Wizards	39
Configuring vConverter	41
Configuration Overview	42
Licensing	42
Licensing Information	42
Configuring vConverter	44
General	45
Conversion	47

Email Notifications.....	48
ESX Servers.....	53
Hyper-V Servers.....	56
Target Folder.....	57
User Profiles.....	57
Task Profiles	59
Configuring Setup Files	67
Adding Source Content.....	70
Source Content	71
Network Browser	71
Importing Source Systems	72
Adding Linux Hosts	74
Cold Cloning Ready	74
Adding Physical Targets.....	75
Windows P2V Conversions.....	76
Conversion Overview	77
Converting with Remote Cold Cloning (RCC).....	79
Converting with Synchronized Cutover	80
Converting with Different Destinations Cutover (DDC)	81
A Note About Continuous Protection	82
Creating Conversions.....	82
Identifying Source Servers	83
Creating Folders and Tasks	86
Configuring Source and Target Settings	88
Saving and Running a Task	97
Conversion Tutorial	100
Pre-task configurations	100
Configuring a Conversion Task	101
Additional Task Procedures	104
Configuring a Conversion with RCC	104
Configuring a Conversion with Synchronized Cutover.....	107
Configuring a Conversion with Different Destination Cutover	110
Continuous Protection	114

Continuous Protection Overview	115
Licensing	116
Configuring Continuous Protection.....	118
Basic Configurations	118
Task Configuration	120
Linux P2V Conversions	123
Linux Conversion Overview.....	124
Important Information About Linux Conversions	125
Configurations for Linux Conversions	127
Creating a Conversion.....	128
Task Configuration	130
Windows V2P Conversions.....	136
Windows V2P Overview	137
Important Notes about Windows V2P	138
Preparing the Target System for V2P	139
Creating a V2P Conversion.....	140
Task Configuration	141
Appendix 1: ISO Image Instructions	144
Using the vConverter VistaPE ISO Image.....	145
Getting Started	145
Obtaining the vConverter PE Image ISO	146
Booting to the vConverter PE Image.....	146
Configuring the vConverter PE Image.....	146
Adding Drivers to the vConverter PE Image- Device Installer	146
Configuring Networking for the vConverter PE Image	148
Adding Drivers to the vConverter PE Image - Using the WAIK.....	151
Compatible Drivers.....	153
Appendix 2: Third Party Contributions	174
Third Party Contributions.....	175
Index.....	176

Introduction to this Guide

This chapter provides information about what is contained in the *vConverter User Guide*. It also provides information about the vConverter documentation suite and Quest Software.

This chapter contains the following sections:

About vConverter	8
About this Guide	8
vConverter Documentation Suite.....	9
Text Conventions.....	10
About Quest Software, Inc.....	10

About vConverter

vConverter is a complete workload migration platform. It provides the functionality, flexibility, and speed needed for high-volume migrations of Windows or Linux servers within the datacenter.

vConverter provides numerous features for medium to large server consolidation initiatives, as well as options for ongoing disaster recovery. Multiple conversion modes and target options ensure data consistency with minimal downtime. A streamlined data transfer mechanism, and the ability to automate many associated tasks, allows vConverter to migrate more servers per conversion window than any other conversion method or technology.

vConverter is also available in a 'Continuous Protection' mode, performing incremental syncs to ensure the integrity of the source server and the viability of virtual standby systems.

About this Guide

This User Guide provides configuration instructions, conceptual information and instructions on how to use the browser interface.

The User Guide is organized as follows:

Chapter 1, Functional Overview — this chapter provides an overview of the features and functions of vConverter. An architectural overview is provided, as well as a glossary of application components.

Chapter 2, User Interface — this chapter provides an overview of the vConverter User Interface.

Chapter 3, Configuration — this chapter guides you through the basic configuration of vConverter.

Chapter 4, Adding Source Content — this chapter describes the methods available for adding source content for conversions. This information is available in the task chapters, but is aggregated here for convenience.

Chapter 5, Windows P2V Conversions — this chapter provides information on configuring P2V conversions of Windows source servers.

Chapter 6, Continuous Protection — this chapter provides information on configuring Continuous Protection conversions.

Chapter 7, Linux P2V Conversions — this chapter provides information on configuring P2V conversions of Linux source servers.

Chapter 8, Windows V2P Conversions — this chapter provides information on configuring V2P conversions of Windows source servers.

Appendix — the appendix provides information about how to configure networking in the VistaPE environment, as well as what drivers are supported. Information on how to add additional drivers is provided.

vConverter Documentation Suite

The documentation suite is made up of the core documentation set plus documents set for advanced configurations. Documentation is provided in a combination of online help and PDF.

- **Online Help:** You can open online help by selecting **Help** in the Help menu.
- **PDF:** The *What's New Guide*, *System Requirements Guide*, *Installation and Setup Guide*, *User Guide*, and *Release Notes* are provided as PDF files. Adobe® Reader® is required.

Core Documentation Set

The core documentation set consists of the following:

- *Release Notes* (PDF)
- *What's New Guide* (PDF)
- *System Requirements Guide* (PDF)
- *Installation and Setup Guide* (PDF)
- *User Guide* (PDF and online help)

Feedback on the Documentation

We are interested in receiving feedback from you about our documentation. For example, did you notice any errors in the documentation? Were any features undocumented? Do you have any suggestions on how we can improve the

documentation? All comments are welcome. Please submit your feedback to the following email address:

info@vizioncore.com

Note Please do not submit Technical Support related issues to this email address.

Text Conventions

The following table summarizes how text styles are used in this guide:

Convention	Description
Code	Monospace text represents code, code objects, and command-line input. This includes: <ul style="list-style-type: none">• Java language source code and examples of file contents• Classes, objects, methods, properties, constants, and events• HTML documents, tags, and attributes
<i>Variables</i>	Monospace-plus-italic text represents variable code or command-line objects that are replaced by an actual value or parameter.
Interface	Bold text is used for interface options that you select (such as menu items), as well as any keyboard commands.
<i>Files, components, and documents</i>	Italic text is used to highlight the following items: <ul style="list-style-type: none">• Pathnames, file names, and programs• Figure captions• The names of other documents referenced in this guide

About Quest Software, Inc.

Quest Software simplifies and reduces the cost of managing IT for more than 100,000 customers worldwide. Our innovative solutions make solving the toughest IT management problems easier, enabling customers to save time and money across physical, virtual and cloud environments. For more information about Quest go to www.quest.com.

Contacting Quest Software

Email	info@quest.com
Mail	Quest Software, Inc. World Headquarters 5 Polaris Way Aliso Viejo, CA 92656 USA
Web site	www.quest.com

Refer to our web site for regional and international office information.

Contacting Quest Server Virtualization Support

Support is available to customers who have a trial version of a Quest Server Virtualization product or who have purchased a commercial version and have a valid maintenance contract.

Support is easily accessed in the following ways:

- Email support directly at support@vizioncore.com for automatic case creation.
- Contact Quest Server Virtualization Support directly via our global and local telephone numbers available at www.vizioncore.com/support.
- Log and create/update your case, and check its status via the Support Case Management portal.

View the Quest Server Virtualization Support Guide for a detailed explanation of support programs, online services, contact information, and policy and procedures. The guide is available at: <http://vizioncore.com/support>

vConverter Functional Overview

This chapter describes the features and functions available in vConverter.

This chapter contains the following sections:

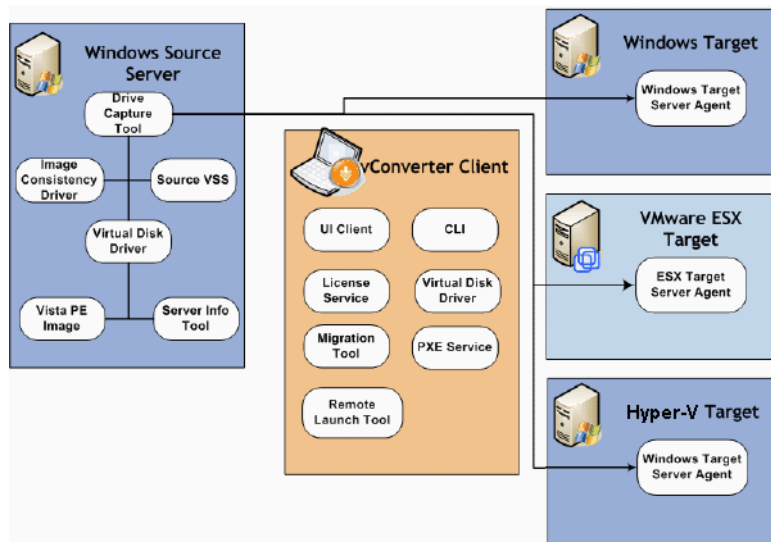
vConverter Overview	13
Conversion Process.....	17
Features and Functions	23

vConverter Overview

vConverter is an enterprise-class Physical-to-Virtual (P2V), Virtual-to-Virtual (V2V), and Virtual-to-Physical (V2P) converter that significantly reduces the time, cost and effort required to convert physical and virtual machines to VMware, and Microsoft virtual machines, as well as deploy virtual machines to a physical environment. It offers simple conversions, together with complex disaster recovery plans. Conversions can be performed from dedicated point(s) of control without having to be in physical contact with source or target servers

vConverter Architecture

vConverter is a single-tiered, client/server application, with both the “client” and “server” components installed on the same machine. vConverter utilizes several tools and components to convert source machines to the target platform. The diagram below shows the various components, and where they are utilized during the conversion process.



Source Server Components

Drive Capture Tool	<p>This tool reads disk data and transfers it to the target server. The Drive Capture tool includes the Image Consistency Driver.</p> <p>The Drive Capture Tool can operate in both block and file modes. Block mode is faster and gives exact binary copy of source volumes, but file is required for volume resizing operations.</p>
Image Consistency Driver	<p>This driver monitors source volumes during the capture process to buffer write requests during the conversion. Changes are committed after the volume is captured. By using the Image Consistency Driver, vConverter produces a VM in a crash-consistent state. For source systems compatible with Microsoft's VSS, vConverter can leverage VSS for data consistency.</p>
Source VSS	<p>This is a component of compatible source systems. Microsoft's Volume Shadow Services (VSS) pauses compatible applications to provide a higher level of data consistency.</p>
Virtual Disk Driver	<p>A component of the Drive Image Mount Tool, the Virtual Disk Driver is used to mount remote disk images for modification during the conversion process.</p>
Vista PE Image	<p>A boot image based on Windows Vista. This is used in conjunction with the vConverter PXE service to boot remote source or target servers (V2P). The Vista PE may also be burned to a Boot CD to manually boot source machines into the vConverter environment.</p> <p>Note The VistaPE will assign the volume letter "X" to it's own RAM drive volume. Please ensure that source systems do not use the volume letter "X" when converting with the VistaPE environment.</p>
Source Info Tool	<p>This runs on the source server, recording source disk configuration, OS information, network settings and (optionally) installed software.</p>

vConverter Client Components

UI Client	UI Client (the Client) helps user to configure conversions, to control the conversions, and indicates conversion process progress.
License Service	A program unit which maintains user license information, such as counter of systems to migrate, time restriction information, etc.
Virtual Disk Driver	A component of the Drive Image Mount Tool, the Virtual Disk Driver is used to mount remote disk images for modification during the conversion process.
Migration Tool	<p>This tool runs on the Client system, and performs necessary system conversion operations to make sure that the system is bootable and functioning properly after conversion from physical (or virtual) to target platform.</p> <p>The Migration Tool injects necessary SCSI drivers, copies a new HAL file for the target platform from the setup folder, and updates the Windows registry on the mounted file system.</p> <p>The Migration Tool uploads the Post Migration Agent which performs various post-conversion tasks:</p> <ul style="list-style-type: none">• it installs VMware Tools for VMware ESX and Hyper-V targets• schedules running user scripts on migrated system• uninstalls required software from the migrated system• configures the network. <p>All of these tasks are performed when the VM is booted for the first time.</p>
PXE Service	Installed near the vConverter client, the PXE service allows remotely booting source systems into the vConverter boot environment.

Remote Launch Tool	A tool intended for executing processes on a remote Windows system. It requires having the administrative credentials for a remote system to run.
---------------------------	---

Target Components

Target Server Agent for ESX	Used for creating and writing to VMDKs on VMware ESX Server 3.x and 4.x. The Target Server Agent has to be run in the Service Console of the target VMware ESX server.
vConverter Virtual Appliance	<p>Specifically designed components to leverage VMware vMA to be able to communicate and perform commands on behalf of vConverter. vMA with installed components is required for conversions to ESXi servers and for all Linux OS conversions. It may also be used on ESX servers to avoid running the Target Server Agent in their service consoles.</p> <p>Note P2V Conversions to an RDM are disabled when using the vConverter Virtual Appliance with VMware VMA. See Support for RDM for more information.</p>
Migration Tool Package	This package collects source system configuration information and displays this information in the vConverter console. For more information see Linux Conversion Overview .

Conversion Process

There are several different types of conversions available with vConverter. Each type of conversion follows a slightly different process, and offers different options. The main types of conversions available are:

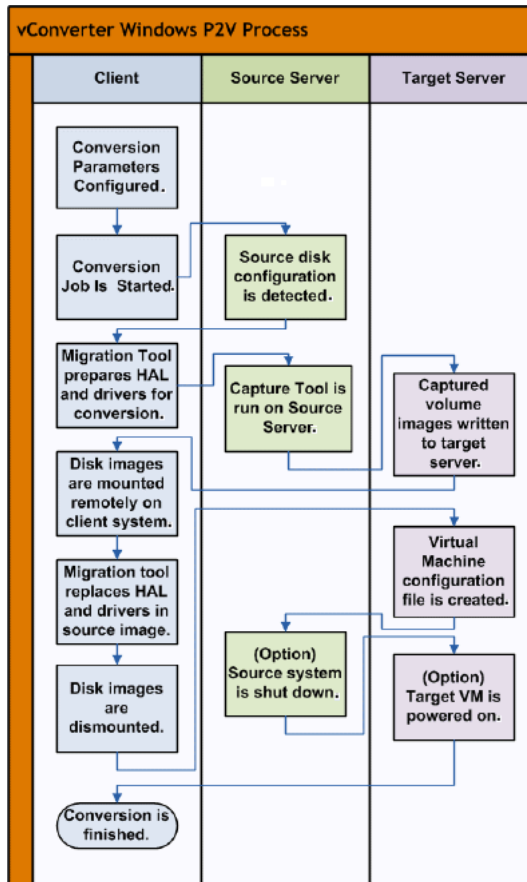
- [Windows P2V](#)
- [Linux P2V](#)
- [Windows V2P](#)

Windows P2V

The primary use case for vConverter is to migrate a workload from physical Windows servers to a virtual machine on one of the supported platforms. Due to varying workload requirements, vConverter offers multiple conversion options:

- Standard “hot” conversions are suitable for basic workloads such as file or print servers. The VMs created will be crash-consistent. Standard conversions occur without rebooting the source server or taking it offline.
- For transactional servers (Exchange, SQL, etc), **Remote Cold Cloning (RCC)** provides a fully consistent image. Cold cloning requires booting the source server into vConverter Pre-boot Environment, either remotely via RCC or PXE, or manually with a boot CD.
- For those wanted to ensure data consistency and minimize the cutover window, vConverter offers **Synchronized Cutover**. During Synchronized Cutover, a standard conversion is performed in advance of the desired cutover date. Subsequent incremental conversions are run to keep the VM in synch with the source server. This minimizes the amount of data that has to be transferred on the final conversion. At the time of the scheduled cutover, vConverter will perform a final, incremental cold conversion to capture any changes and ensure data consistency. This final data transfer will be relatively small because the previous conversions have transferred the bulk of the data.
- vConverter can also be used to provide Disaster Recovery protection to physical servers. In **Continuous Protection** mode, physical workloads are copied to virtual machines using recurring incremental conversions. Continuous Protection uses “hot” conversions to avoid disrupting the source server.

The standard Windows P2V process follows the basic workflow described below.



The main components of the conversion process are the Drive Capture Tool (which sends the data) and the Target Server Agent (which receives the data).

After the job is executed and the Drive Capture Tool (DCT) starts sending data to ESX, it is detected by the Target Server Agent (TSA) service running. This starts the server component particular to that job. Multiple jobs can run at the same time and each job will use its own server component instance.

To transfer data to the target, a new VMDK file is created. VMDKs are created in a sparse (growable, thin) format by default, but can optionally be created as flat (thick) disks. For ESX, you can specify a unique VMDK file and datastore for each Windows volume. Conversions to shared folders and Hyper-V is also available.

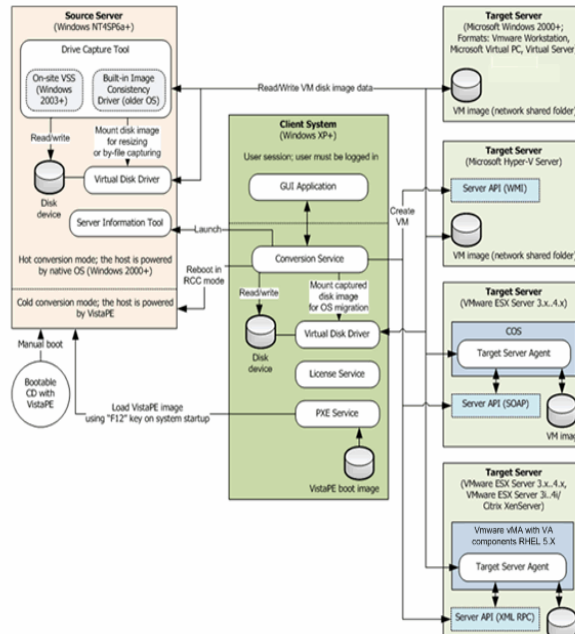
The TSA receives data from the DCT and places it in the VMDK file. If a block of zeroed data is

detected by the DCT, it is ignored. The zeroes already exist in the VMDK, so there is no reason to overwrite them.

(Optional) After all data has been transferred to the VMDK file, the server component can resize the files based on job configuration. In this case, the NTFS partition is modified as well.

The server component performs the conversion and creates a bootable instance of the VM with the proper drivers. A VM is created and registered on the ESX host based on job configuration settings that include assigned memory, virtual disk, and virtual network assignment. The server component terminates and enters a wait state-controlled through the TSA-to anticipate the next job.

An architectural representation of the Windows P2V process is shown below.

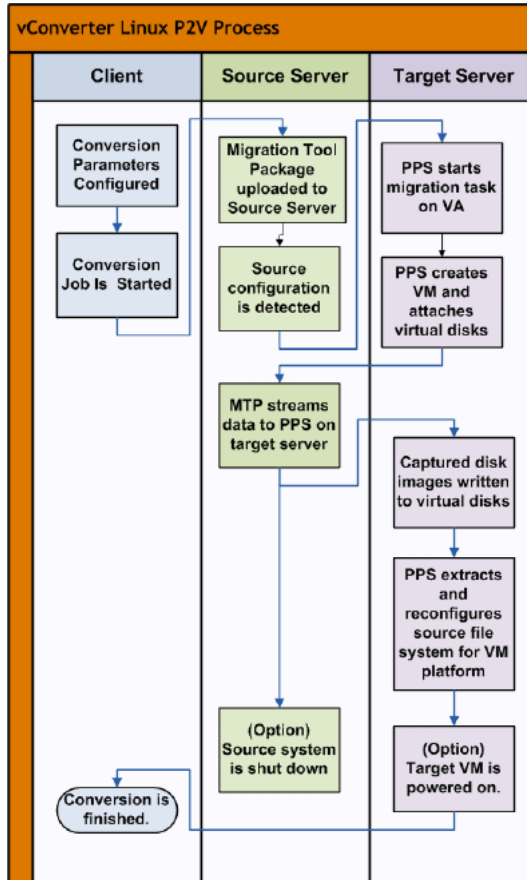


Linux P2V

The Linux P2V process follows the basic workflow described below:

The main components of the Linux conversion process are the Migration Tool Package (MTP) and the Post Processing Service (PPS). The MTP is uploaded to the Linux source server, and prepares and sends the data. The PPS resides in the vConverter Virtual Appliance running on VMware vMA – it receives data from vConverter and the MTP and creates VMs and write VMDKs.

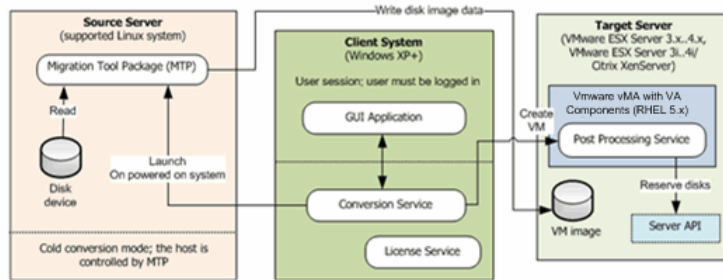
The vConverter client connects to the source server and uploads the Migration Tool Package. The MTP collects source system configuration information and displays this information in the vConverter console.



Once the job has been configured and started, the vConverter client starts a new migration session and invokes the Post Processing Service that is running within the VMware vMA on the target system. The PPS creates virtual disks and makes some additional preparations to receive the data from the source MTP. When all preparations on the PPS site have been done, the vConverter client invokes MTP to start streaming the source data. The MTP reads block by block from the selected hard disks and uploads the data to target PPS.

Once the data transfer has completed, the vConverter client will invoke PPS to migrate hardware specific configurations to settings compatible with the target platform. As a result, PPS gets a virtual disk image (or set of images) that can be used to register a new VM instance within VMware ESX Server.

An architectural representation of the Linux P2V process is shown below:



Note A P2V conversion using the VA as a target may fail if the resulting VM will have the same name as another VM within the vCenter infrastructure. The error message "Can't find proper disk-name amount attached disks to VA" will be displayed. Additionally, several indexed VM copies may be created on the target ESX host.

Windows V2P

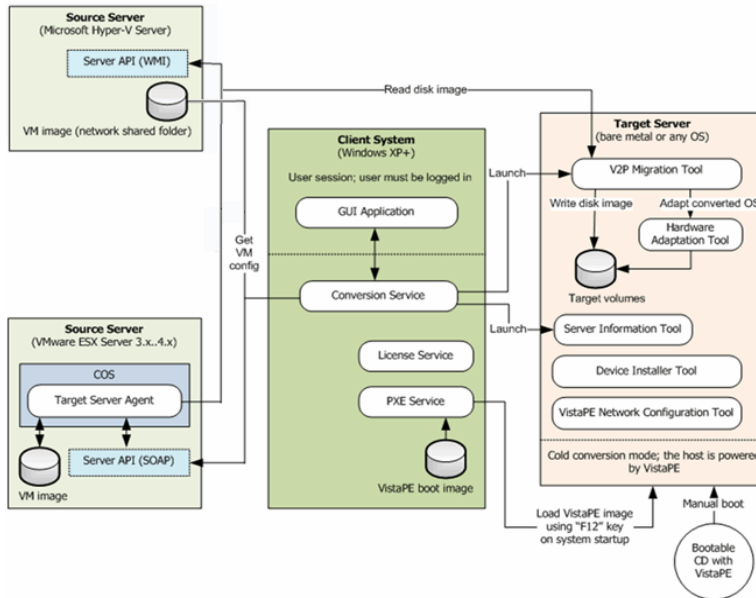
vConverter offers the ability to convert Windows VMs back to a physical target. vConverter uses a VistaPE boot image to boot the physical system, so the target server does not need to have an OS.

Once you configure a task and specify the source VM, vConverter obtains the essential information about it using the Conversion Service. This is done either via a special API provided by the source virtualization platform (for ESX, and Hyper-V servers). This information is saved in vConverter together with the task settings, and is used during the conversion process.

To specify the target system in the Task Properties pane, you need to first boot it using the VistaPE boot image. The Server Information Tool is then launched, which enables vConverter to get required disk information from the target.

When V2P conversion is started, the Conversion Service enables the V2P Migration Tool on the target. The tool reads the source VM disk image sector by sector and restores an exact partition layout. After that, it launches the Adaptation Process inside V2P Migration Tool, which prepares the restored system for the first run on the new hardware.

An architectural representation of the Windows V2P process is shown below:



Features and Functions

P2V for Windows Servers

vConverter is a task, enterprise-level consolidation/migration application. It allows you to capture a live physical or virtual Windows system and transfer its data directly to a Windows shared folder, Microsoft Hyper-V, or ESX host. vConverter's physical to virtual (P2V) and virtual to virtual (V2V) approaches ensure consistent results: the converted image will mirror the source. There is no additional software to install on the source. Nor are any helper components required. You need not be present at the source during the conversion process.

P2V for Linux Servers

vConverter provides support for converting Linux servers to virtual machines. To ensure data consistency, Linux sources must be converted in cold conversion mode using the VMware vMA with vConverter Virtual Appliance components on the target server. P2V Linux conversions occur in block mode only.

V2P for Windows Servers

Windows VMs can be converted to physical servers. By booting the physical server into the vConverter boot environment (via PXE or the boot CD), it becomes a conversion target that can be managed by the vConverter console. V2P conversions are block, and occur in cold-mode only.

Virtual Appliances Components for VMware vMA

The Virtual Appliance components are installed in the VMware vMA, and host the Target Server Agent and other utilities that would normally be run in the Console Operating System(COS). For the ESXi platforms, which don't have a COS, converting to the VMware vMA with Virtual Appliance components is the only method available. Virtual Appliance components are also required for Linux OS conversions.

Note When using the VA for any task, the VM will be created on the first step.

Hot Conversions

Hot cloning is the process of taking a live source system and creating a complete copy of it in the form of a VM. To yield a data-consistent image, the vConverter Consistency Driver (VCD) and MS VSS assist in the process. VCD captures write requests from the file system and retains the former state of the updated disk blocks. VCD is unaware of running applications on the source and therefore cannot save associated data for backup. This is where MS VSS steps in - telling databases and application servers to flush uncached data to disk so that backup can proceed.

Cold Conversions

There are two types of cold conversion - manual and automated. During manual cold conversion, the source is manually booted to the vConverter VistaPE image, either via PXE or using a boot CD. You manually create and control the conversion.

To perform an **automated** Remote Cold Cloning (RCC), you schedule a conversion. When the job starts, a boot loader and boot image are sent to the source. At a time that you designate, the source reboots in vConverter's boot environment. After the boot image brings the source onto the network, the conversion monitor component connects to vConverter. The conversion completes. You need not be present at the source machine during conversion.

During the **manual RCC** process, you can boot the source using vConverter PXE service. IN order to boot the source, the following conditions must be met:

- Source server should be configured to boot from the network.
- DHCP must be present.
- No UDP message (including broadcast) must be filtered between PXE service and source server.
- vConverter PXE service must be run.

Remote Cold Cloning

When you select Remote Cold Cloning (RCC) as the conversion type, vConverter sends a boot loader and its boot image over the network to a source. This source boots at a time that you designate, and the conversion begins. RCC is a good option for converting transactional systems such as database and email servers.

This is how the automated RCC process works:

- 1 vConverter sends a new boot loader to the source.
- 2 vConverter sends the VistaPE boot image file directly to the source and initiates a reboot.
- 3 The source boots into the vConverter boot image and instantiates the network stack.
- 4 vConverter establishes contact with the conversion monitor and initiates the conversion process.
- 5 Once conversion is complete, the source restarts and boots into its previous boot environment with the previous boot loader intact.

The VistaPE environment used in Remote Cold Cloning will assign the volume letter “X” to its own RAM drive volume. If the VistaPE is used to convert a physical volume with the same volume label, the PE environment will become unavailable to vConverter. Please ensure that source systems do not use the volume letter “X” when converting with the VistaPE environment.

Continuous Protection Mode

You can protect datacenter workloads by addressing disaster recovery (DR) through virtualization. Taking a P2V approach, vConverter preserves a virtual backup copy of a physical machine. When you select Continuous Protection as the conversion type, incremental replication is used. During this process, network usage is minimized because only changes to source data files are transferred to the target. You define the intervals at which these transfers occur. Continuous Protection uses a hot cloning method to avoid disruption to the source server.

Note Continuous Protection is only available for Windows conversions.

Synchronized Cutover

A cutover is the process of switching from the source VM to the target VM. A cutover window is the period of time on a specific date (or span of dates) when it is acceptable to perform cutover. Pre-synchronized cutover occurs after the initial copying phase of the conversion, when any remaining changes to the source are copied to the target and committed.

Synchronized Cutover allows you to minimize the cutover window by completing a P2V conversion and synchronizing changes on the source to the target at specified

intervals (for example, every 15 minutes). Synchronized Cutover uses the hot cloning method for initial and subsequent synchronizations. While cold cloning is used for the final synchronization, you can also trigger a hot (live) final synchronization.

Note Synchronized Cutover is only available for Windows conversions.

Different Destinations Cutover

When your initial and final targets are different, select Different Destinations Cutover (DDC) as the conversion type. The initial P2V event will target the first destination. The VM can be moved to the second destination. Then, the initial P2V event can be modified to allow the final synchronization to retarget the VM.

Note Different Destinations Cutover is only available for Windows conversions.

64k Alignment

Most virtual machine volumes are created in such a way that causes partitions to be misaligned. This can cause data to be written to multiple blocks during a single write operation, which results in poor application performance. vConverter creates VMs with Windows volumes using the recommended 64k blocks. These blocks are aligned with the VMFS boundaries for improved performance. This feature is always on and cannot be controlled from GUI.

Note 64k alignment applies only to P2V Windows conversions to VMware ESX and ESXi.

Support for RDM

Raw Device Mapping (RDM) is a file in a separate VMFS volume that acts as a proxy for a raw physical device. An RDM provides a VM with direct access to a LUN on a fiber channel or iSCSI physical storage system. With P2V to RDM, all source volumes to be converted are placed on a single device. Typically, an RDM is useful for utilizing Storage Area Network (SAN) software for replication and snapshots. Input/Output (I/O) improves because multiple servers need not read and write to a LUN; only a VM with access to RDM will do so.

Support for RDMs requires two specific settings in the Advanced Task Properties. Conversions to RDMs need to be configured to create a flat (non-growable) disk, and all source volumes should be converted to a single device. For more information, please see “[Task Profiles - Properties](#)” on page 60.

Note P2V Conversions to an RDM are disabled when using the Virtual Appliance for VMware.

Task Folders

Tasks Folders are a way to control of several conversion tasks in a centralized way.

In vConverter, each task has to be placed into corresponding container, or folder. The Run and Stop commands are applied globally to the folder.

Task Profiles

The fields on the Task Profiles tab help you increase multi-conversion process efficiency by allowing you to configure a conversion once and save the settings for future use. These profiles are not associated with specific sources or targets; rather, they define only general settings.

User Profiles

Through the fields on vConverter's User Profiles tab you can create one set of credentials to use with multiple source servers. You can create distinct profiles for each system and save them for later use.

Live Log

Live Log is a GUI feature that allows users to monitor running conversion tasks and see status of conversion, rest steps, and available warnings and errors.

Each conversion task consists of several steps, depending of task type. Live Log displays all these steps in an expandable tree view form, with nice graphics. If inner step fails, it lifts fail state to the top level, so users can easily locate failed task runs. Available information about error reason is displayed below the failed entry, to make troubleshooting easier.

Disable Task Running

Disabling a Task would be useful if a disaster occurs and Protection Site becomes unavailable. Executing a predefined recovery plan, while leaving configured backups/replications/conversions unaltered would be useful.

Conversion could be postponed using the **Disable** option. Task will be disabled and will not be run. Later conversions could be enabled by using the Enabling command.

vConverter changes the icon for the Disabled tasks so they could be easily found in tasks list.

vConverter User Interface

This chapter provides an overview of the main functions of the vConverter User Interface.

This chapter contains the following sections:

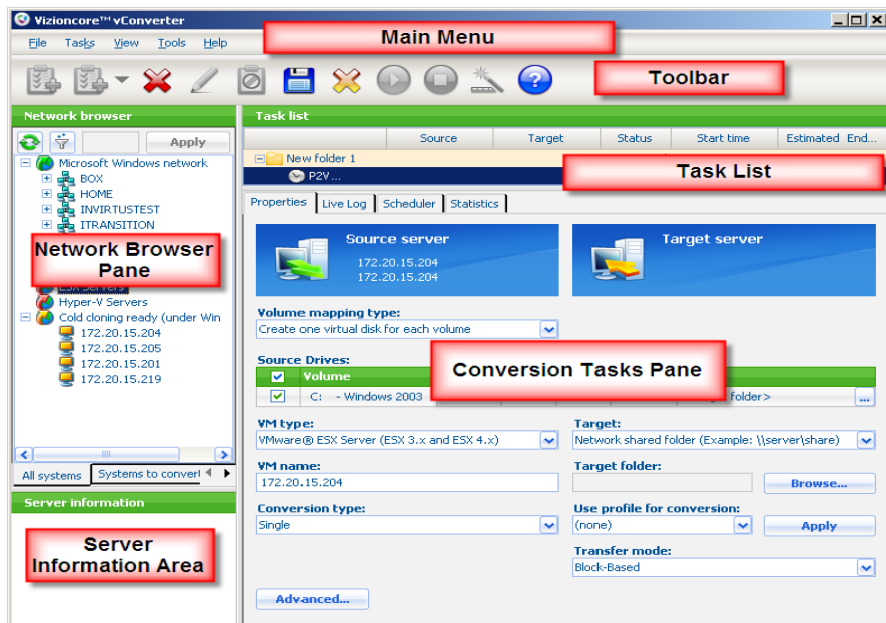
- User Interface Overview 30
- Menus 31
- Toolbars 34
- Task List 35
- Conversion Tasks Pane 37
- Conversion Wizards 39

User Interface Overview

The vConverter window is the central navigational area of the software. This is where you can view the main components of the system. Through this window you can access the commands that allow you to configure and execute conversion jobs.

Now that the software is installed, launch it through its desktop icon or the Start menu. The vConverter window features these areas:

- Menu Bar
- Toolbar
- Network Browser Pane
- Task List
- Conversion Tasks Pane
- Server Information Area



Menus

The Menu Bar contains the following options:

File

Export>Tasks	Displays the Save as dialog from which you can export your configured conversion tasks. This allows vConverter to be installed on multiple systems, maintaining the same configurations.
Export>Settings	Displays the Save as dialog from which you can export the settings that you defined through Tools>Preferences. This allows you to maintain the same preferences on multiple systems and instances of vConverter.
Import>Tasks	Displays the Open dialog through which you can import the tasks configured previously. This command allows you to maintain the same configurations on multiple systems and instances of the software.
Import>Settings	Displays the Open dialog through which you can import the settings configured previously. This command allows you to maintain the same preferences on multiple systems and instances of the software.
Host	<p>Provides the same options as a right-click on a system in the Network Browser pane:</p> <ul style="list-style-type: none">• Set as source• Set as target• Refresh• Change login• Add to systems to convert• Create conversion task
Exit	<p>Closes the vConverter client window.</p> <p>Note Closing the client window leaves the vConverter services, responsible for driving running or scheduled conversion tasks, running.</p>

Tasks

The Tasks menu provides the same options as the Main Toolbar.

View

View properties	The Task Properties tab is the area in which conversion tasks area configured.
View Live Log	Each conversion task consists of several steps, depending on the task type. Live Log displays all these steps in an expandable tree view form, with nice graphics.
View Scheduler	This tab displays all scheduled conversion jobs in a calendar format.
View Statistics	The Statistics tab shows a historical record of activity for the selected task.

Tools

Conversion Wizard	This opens the Conversion Wizard dialog, which walks you through the configuration process for Windows P2V, Windows V2P, and Linux P2V tasks.
Preferences	Opens the Program Preferences dialog, which you can use to define conversion and application preferences.

Help





License activation	<p>Opens the Activation Wizard dialog, which you can use to activate a vConverter license.</p> <p>Note This is only necessary for Continuous Protection conversions.</p>
Help	Opens online help, which includes general information about vConverter, as well as instructions on how to configure the software, create and run conversion jobs, and so forth.
Support	Opens the vConverter Technical Support Assistance window from which you can send support requests and capture log files.









Clear logs	<p>Deletes all application logs.</p> <p>Caution Deleted logs will not be available for Support. Use this feature selectively.</p>
About	<p>Displays information about vConverter, including:</p> <ul style="list-style-type: none">• Software version• Name of the person to whom the software is registered• License number <p>The About window also includes a View License Details link that will show the current licensing status, as well as the license agreement link.</p>

Toolbars

Main Toolbar

The Toolbar of the vConverter window features these icons:

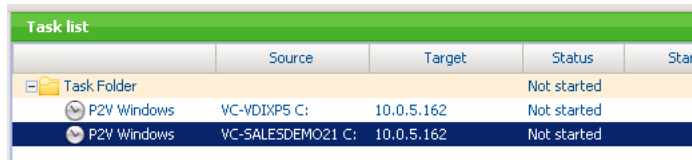
	Create New Folder
	Create New Task
	Remove Task or Folder
	Edit Task

	Disable Task – for more information, see “ Disable Task Running ” on page 28
	Enable Task – for more information, see “ Disable Task Running ” on page 28
	Save Task
	Cancel Task Editing
	Start Task
	Stop Task
	Run Conversion Wizard
	Open the About Window

Task List

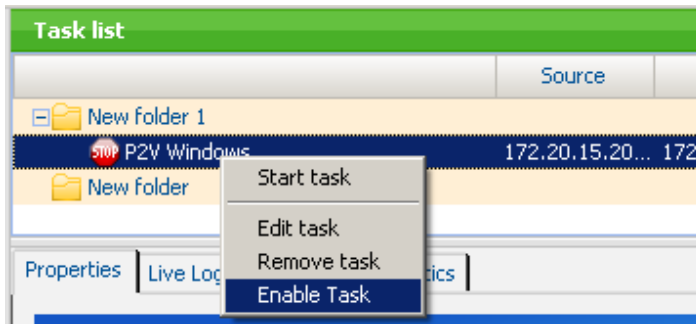
In vConverter, each task has to be placed into corresponding container, or folder. Folders are a way to put similar conversion tasks together. It is possible to rename folders, create and remove tasks and folders, and move tasks between folders. Also it is possible to run or stop the entire tasks within given folder with one click, using Run and Stop commands.

Folders and tasks are managed via the Task List pane of the vConverter UI.



Task Folder	Source	Target	Status	Start
Task Folder			Not started	
P2V Windows	VC-VDIXP5 C:	10.0.5.162	Not started	
P2V Windows	VC-SALESDEMO21 C:	10.0.5.162	Not started	

Tasks can also be Started, Edited, Removed and Enabled/Disabled by right clicking a Task.



Conversion Tasks Pane

The Conversion Tasks Pane includes four tabs:

- the Properties tab
- the Live Log tab
- the Scheduler tab
- the Statistics tab

Each of these is described below.

Properties

The Task Properties tab is the area in which conversion tasks are configured. The Task Properties pane consists of Source and Target hotspots, the Source Drive section, the Target section, and the Source Section. For more detailed information, see “[Configuring Source and Target Settings](#)” on page 88.

The screenshot shows the 'Properties' tab in the vConverter interface. It features two main sections: 'Source server' and 'Target server'. Below these are settings for 'Volume mapping type', 'Source Drives' (a table), 'VM type', 'VM name', 'Conversion type', 'Target', 'Target folder', 'Use profile for conversion', and 'Transfer mode'. An 'Advanced...' button is at the bottom left.

Source server
172.20.15.207
172.20.15.207

Target server
172.20.15.32
172.20.15.32

Volume mapping type:
Preserve disk structure

Source Drives:

<input checked="" type="checkbox"/>	Volume	File syst	Size, G	Free, G	Resize	Folder
<input checked="" type="checkbox"/>	C: [New Volume] -	NTFS	3.45	0.18	3.45	/vmfs/volumes/invirtus-esx-5-...

VM type:
VMware® ESX Server (ESX 3.x and ESX 4.x)

VM name:
172.20.15.207

Conversion type:
Single

Target:
172.20.15.32

Target folder:
/vmfs/volumes/invirtus-esx-5-ds **Browse...**

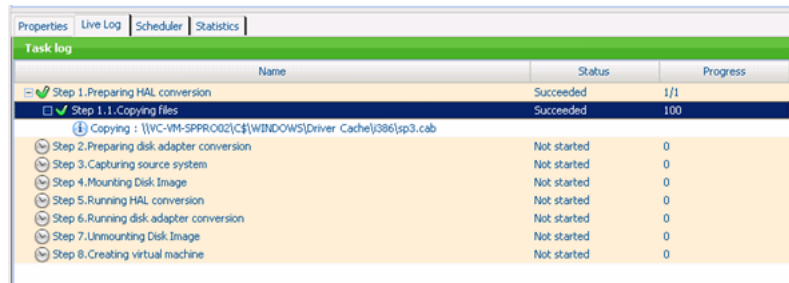
Use profile for conversion:
(none) **Apply**

Transfer mode:
Block-Based

Advanced...

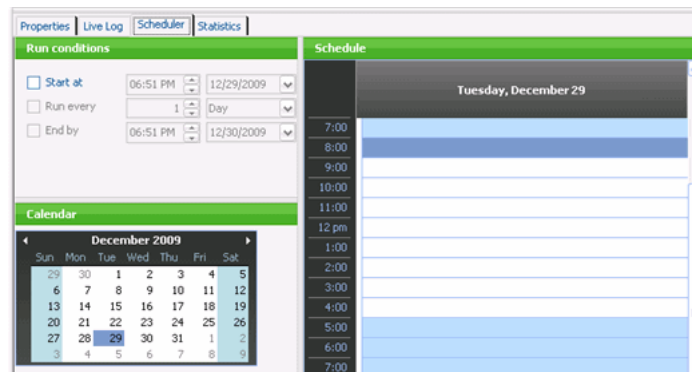
LiveLog

Each conversion task consists of several steps, depending on the task type. Live Log displays all these steps in an expandable tree view form, with nice graphics. If inner step fails, it lifts fail state to the top level, so users can easily locate failed task runs. Available information about error reason is displayed below the failed entry, to make troubleshooting easier.



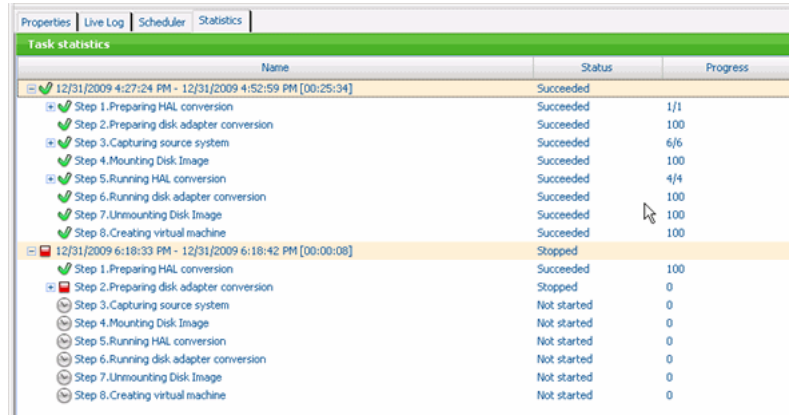
Scheduler

This tab displays all scheduled conversion jobs in a calendar format. You can reschedule a conversion job by editing it.



Statistics

The Statistics tab shows a historical record of activity for the selected task.



Task statistics		
Name	Status	Progress
12/31/2009 4:27:24 PM - 12/31/2009 4:52:59 PM [00:25:34]	Succeeded	
Step 1.Preparing HAL conversion	Succeeded	1/1
Step 2.Preparing disk adapter conversion	Succeeded	100
Step 3.Capturing source system	Succeeded	6/6
Step 4.Mounting Disk Image	Succeeded	100
Step 5.Running HAL conversion	Succeeded	4/4
Step 6.Running disk adapter conversion	Succeeded	100
Step 7.Unmounting Disk Image	Succeeded	100
Step 8.Creating virtual machine	Succeeded	100
12/31/2009 6:18:33 PM - 12/31/2009 6:18:42 PM [00:00:08]	Stopped	
Step 1.Preparing HAL conversion	Succeeded	100
Step 2.Preparing disk adapter conversion	Stopped	0
Step 3.Capturing source system	Not started	0
Step 4.Mounting Disk Image	Not started	0
Step 5.Running HAL conversion	Not started	0
Step 6.Running disk adapter conversion	Not started	0
Step 7.Unmounting Disk Image	Not started	0
Step 8.Creating virtual machine	Not started	0

Conversion Wizards

The Conversion Wizard offers a step-by-step approach to configuring a conversion task. The same wizard is used for all types of conversions. The first screen allows you to select the type of conversion you want to perform.



The Conversion Wizard will walk you through the task configuration steps. For more information about the fields in the task wizard, please refer to the appropriate chapter for that task:

- [“Windows P2V Conversions”](#) on page 76
- [“Linux P2V Conversions”](#) on page 123
- [“Windows V2P Conversions”](#) on page 136

Configuring vConverter

This chapter details the processes for configuring the basic connections required by vConverter. In addition, the procedures for completing the basic backup and restore wizards will be documented.

This chapter contains the following sections:

Configuration Overview	42
Licensing.....	42
Configuring vConverter.....	44
Configuring Setup Files	67

Configuration Overview

Now that vConverter is installed, you can launch it by double-clicking the desktop icon or by accessing it through the Start menu. The software requires a number of application and environment configurations to ensure that it functions properly. They are described in detail below.

Note Most of the content in this chapter is also in the vConverter Installation and Setup Guide. It is duplicated here to provide a single source of configuration information. For information unique to the User Guide, see the sections below:

[Licensing](#)

[Configuring Setup Files](#)

Licensing

Licensing Information

The following features are available with a valid license (either a Trial or Perpetual license):

- P2V Windows
- P2V Linux
- V2P Windows
- Continuous protection (Windows only)

There will be no features available without a license (either Trial or Perpetual).

License Types Supported in vConverter 5.1.1

Support is available for the following:

- Trial licenses with 30-day demo period
- Perpetual license (QLL type Ongoing) with no expiration date

No support is available for installations with:

- Trial license with an expiration date (no demo period)
- Term license (QLL type Ongoing) with a stated expiration date

License Overwriting

An instance of vConverter can have only one license installed at a time.

Trial licenses can only be installed on an unlicensed instance of vConverter, or on a vConverter instance that has a trial license (expired or not). Installing a new trial license over a previously installed license will overwrite all settings, in particular, expiration date and number of systems.

Perpetual licenses may be installed at any time: installing over a previously installed license (both trial and perpetual) overwrites a number of systems.

License Handling — Embedded Trial License


When vConverter 5.1.1 is downloaded, it will have an embedded trial license with 30-day demo period.

To activate the Perpetual license:

- 1 From the vConverter interface, click **Help**, then **License Activation**.

The **vConverter Activation Wizard** appears.



- 2 Click **Next**.
- 3 Click the **Browse** icon  and browse to the location of the license file.
- 4 Click **Open**, then click **Next**.
- 5 The **Congratulations** screen appears. Click **Finish**.

Configuring vConverter

Now that vConverter is installed, you can configure the universal settings and preferences for the application. The initial configurations can be made with the **vConverter Preferences** dialog.

The vConverter Preferences dialog is available by selecting **Tools > Preferences** from the vConverter toolbar. The Preferences dialog is divided into multiple tabs listed below:

- [General](#)
- [Conversion](#)
- [Email Notifications](#)
- [ESX Servers](#)
- [Hyper-V Servers](#)
- [Target Folder](#)
- [User Profiles](#)
- [Task Profiles](#)

General

General

Conversion

Email notifications

ESX Servers

Hyper-V Servers

User profiles

Task profiles

View

☒ Show quick tips

☒ Show balloon help

Network settings

Please consider network infrastructure capacity when setting the following:

☒ Limitation of total simultaneous conversions:

2

☒ Limitation of simultaneous conversions to the same target server:

1

PXE service control

Current PXE service status: Stopped

Start PXE service

Setup folders

Operating System	Architecture	SP	Location for OS setup files	Add
				Remove
				?

OK

Cancel

View	<p>Show quick tips: Tips are enabled by default. This will show pop-up windows as you change tabs or open the application.</p> <p>Show balloon help: Balloon help is enabled by default. This will show specific, task-oriented suggestions.</p>
-------------	--

Network Settings	<p>Limitation of total simultaneous conversions: The value you enter in this field will restrict the number of conversions that you can run simultaneously.</p> <p>Limitation of simultaneous conversions to the same target server: The value you enter in this field will restrict the number of conversions that you can run simultaneously to the same target server.</p> <p>Note The values that you enter in these fields will depend on your environment's capacity in several areas: for example, host memory, network bandwidth, and CPU availability. These values cannot be higher than "Limitation of total simultaneous conversions."</p>
PXE Service Control	<p>The vConverter PXE Service can be used to transfer the Vista PE image to target systems via the network. Refers to current PXE service status. Two options are available:</p> <ul style="list-style-type: none">• Start PXE service• Stop PXE service
Setup Folders	<p>Operating System: The name of the OS that you intend to migrate.</p> <p>Architecture: Select either a 32-bit or a 64-bit source.</p> <p>SP: Refers to the service pack level of the OS to be migrated.</p> <p>Location for OS setup files: Indicates the location for storing the kernel and driver files required for OS migration.</p> <p>Add/Remove: Use these buttons to add or remove setup folders within the system</p>

Conversion

General | **Conversion** | Email notifications | ESX servers | Hyper-V servers | User profiles | Task profiles

Windows P2V conversion

Name converted volumes' files:

☒ using vConverter rules (prefixes by volume letter) ?

☐ using VMware rules

Linux P2V conversion

Reserved port on Target VA: 9876

Reserved port on vConverter server: 5000

Fail task when source or target does not respond longer than (in minutes): 10

Advanced...

Cold P2V conversion

Specify how long vConverter should wait for the source server reboot in the cold mode:

☐ wait infinitely

☒ use timeout (in minutes): 15

File-based conversion

☒ Use advanced incremental file system transfer ?

Block size, MB: 1

Minimal file size, MB: 10

OK Cancel

Windows P2V conversion

using vConverter rules:

Software appends an underscore and drive letter or volume GUID (for hidden partitions) to the server name (e.g., ABC_C.vmdk).

using VMware rules:

Software appends an underscore and number to the server name (e.g., ABC.vmdk, ABC_1.vmdk, ABC_2.vmdk) for multiple VMDKs.

Linux P2V conversion

Allows you to configure time out values.

Cold P2V conversion	vConverter will wait for the source system to respond before beginning the conversion process. The wait interval can be configured here - either infinite or a defined value. If there is no response received from the source system during the timeout interval, the conversion will fail. Having large timeout value may be useful when booting source systems with limited resources, where booting to the VistaPE may require additional time.
File-based conversion	<p>Allows you to enable incremental file system transfer based on block and file size.</p> <p>Block size, MB: Some conversion types (Synchronized Cutover, Different Destinations Cutover, Continuous Protection) require multiple conversion passes, with only changed data being transferred with each pass. This value determines the size of the block that is transferred. Generally, a smaller block size will result in less transferred data, but will require a larger vConverter database.</p> <p>Minimal file size, MB: This value determines the file size above which incremental file transfer will occur. For files smaller than this value, the complete file will be copied over.</p> <p>Note In environments with slower network performance, incremental file transfer should provide improved conversion performance. With higher speed networks, the performance gains may be minimal, but less data will be sent across the network.</p>

Email Notifications

If you enable these fields, you will receive notifications via email for conversion jobs. Notifications can be configured for successful jobs, failed jobs, or both. You can trigger email at job initiation, as well as intermediate synchronization.

General | Conversion | **Email notifications** | ESX Servers | Hyper-V Servers | User profiles | Task profiles

Notification method

☐ MAPI ☒ SMTP [Configure...](#) ☐ Send messages on intermediate synchronizations.

"Conversion started" notification

☐ Enable

Receiver email address:

Email message subject:

"Conversion finished" notification

☐ Enable

Receiver email address:

Email message subject:

☐ Attach the logs if conversion succeeded

☒ Attach the logs if conversion failed

☐ Attach HTML report

[OK](#) [Cancel](#)

Notification Method	<p>The Mail Notification feature can be configured to use either a MAPI compliant mail client or an SMTP server.</p> <p>MAPI Client: This mail client, such as Microsoft Outlook needs to be installed on the same machine as vConverter.</p> <p>SMTP: You will need the name or IP address of the SMTP server, as well as credentials with access to send mail via the SMTP server.</p> <p>Send message on intermediate synchronizations: This option is disabled by default. Indicates whether message should be send for each intermediate step for Synchronized Cutover and Different Destination Cutover conversion modes.</p>
Configure	Use this button to configure the selected email method.

<p>“Conversion started” notification</p>	<p>Select the Enable check box to activate these fields:</p> <p>Email addresses to send: Use this field to enter email addresses for those who should receive alerts when conversion jobs are initiated.</p> <p>Email subject: Populate this field with the text that you want to display in the Subject line of the alerts sent to the recipients listed in the Email addresses to send field.</p>
<p>“Conversion finished” Notification</p>	<p>Select the Enable check box to activate these fields:</p> <p>Email addresses to send: Use this field to enter email addresses for those who should receive alerts when conversion jobs complete.</p> <p>Email subject: Populate this field with the text that you want to display in the Subject line of the alerts sent to the recipients listed in the Email addresses to send field.</p> <p>Attach logs if conversion succeeded: Select this check box to attach relevant log files if a job succeeds.</p> <p>Attach logs if conversion failed: Select this check box to attach relevant log files if a job fails.</p> <p>Attach HTML report: Select this check box to attach an HTML report to the notification email.</p>

Email Notifications - Configure SMTP

If you select SMTP on the Email Notifications tab of the Program Preferences window, the Configure button is enabled. When you click this button, the Configure SMTP Preferences dialog is displayed.

Configure SMTP Preferences

Server name or IP:

Server port (default is 25):

Email address:

Email username:

Email password:

Repeat Email password:

Server Name or IP	The name of the SMTP server or its IP address.
Server Port	The port for the SMTP server. The default value is 25.
Email Address	The address from which email notifications about this server will be sent.
Email Username	The user account from which email notifications about this server will be sent.
Email Password	The password of the user account used above.
Repeat Email Password	The password of the user account used above.
Test Server Connection	Use this button to test the connection to the SMTP server that you configured.

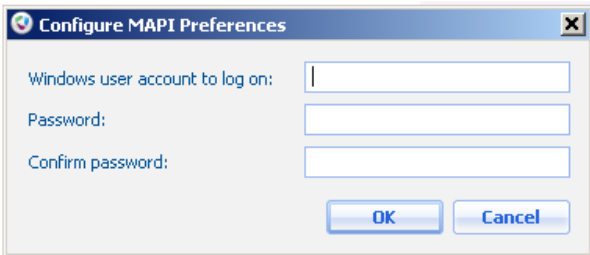
Email Notifications – Configure MAPI

Using MAPI Email Notifications, vConverter will use the current default email account. You should check your email accounts in OS Window settings.

Note Some mail clients, such as Microsoft Outlook, must be installed on the same machine as vConverter.

MAPI is available of x86 OS only.

If you select MAPI on the Email Notifications tab of the Program Preferences window, the Configure button is enabled. When you click this button, the Configure MAPI Preferences dialog displays.



Windows user account log on	The user account configured for the default email account.
Password	The password for the user account.
Confirm Password	Reenter the password.

ESX Servers

General

Conversion

Email notifications

ESX Servers

Hyper-V Servers

User profiles

Task profiles

Servers

Address

Name

Add

Delete

Edit

Test

Server info

Host name or IP:

Username:

Root password:

Password:

Verify root password:

Verify password:

☒ Create user if doesn't exist

☒ Use virtual appliance to transfer data

?

VA Config...

Unlock

?

Advanced...

?

Save and Install

Uninstall

Cancel

OK

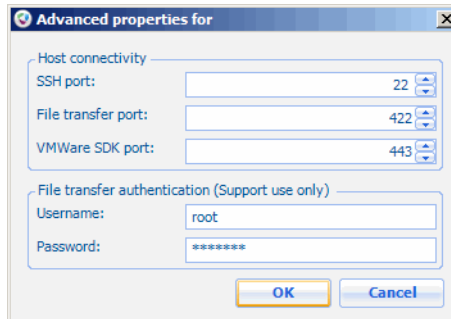
Cancel

Servers	Lists all of the ESX Servers — by IP address or name — that are available for conversion. Allows you to add, edit, delete, and test connectivity.
---------	---

Server Info	<p>The fields on this tab include general properties for the ESX Servers in the system:</p> <ul style="list-style-type: none"> • Host name or IP • Username • Password • Verify password • Root password • Verify root password <p>Use these options to configure individual ESX Servers: Create User if doesn't exist, and Enable VA feature check boxes.</p> <p>Note The username and password entered above are used only to connect to the Service Console of the ESX Server. If the vConverter Virtual Appliance will be used, you do not need to enter these.</p> <p>For information on the Advanced and VA Config buttons, see the sections:</p> <ul style="list-style-type: none"> • “ESX Servers - Advanced Properties” on page 54 • “ESX Servers - VA Configuration” on page 55
Save and Install	<p>Click Save and Install to install vConverter components to the ESX Server. This will add the ESX Server to the list of available targets for vConverter.</p> <p>Note The vConverter components are installed to ESX servers only if the Use virtual appliance to transfer data option is not selected.</p>
Uninstall	<p>Click Uninstall to remove the components from the ESX Server and remove it from vConverter's list of targets.</p> <p>Note The installation will fail if the credentials you enter are invalid.</p>

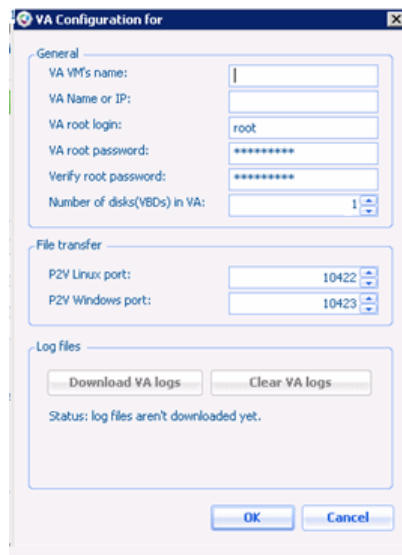
ESX Servers - Advanced Properties

If you click the Advanced button on the ESX Server tab, the Advanced properties dialog is displayed. Although you can adjust port settings through this dialog, it is best to leave the defaults in place.



ESX Servers - VA Configuration

If you click the VA Config button on the ESX Server tab, the VA Configuration dialog is displayed. On this dialog, you can configure VA, including the number of disks it has.



The conversion logs from the VA are automatically taken during conversion; however, for troubleshooting conversion problems, the Download VA logs feature may be used:

- 1 Click the **Download VA logs** to gather all available logs from the VA to a local folder.

- 2 Use **Help->Support** feature to generate a whole logs package to send to support.

Note Once an ESX server is configured, and tasks added to it, a change in the server configuration will break any tasks configured for that server.

Hyper-V Servers

The screenshot shows the 'Hyper-V Servers' tab in the vConverter configuration window. The window has a tabbed interface with tabs for General, Conversion, Email notifications, ESX Servers, Hyper-V Servers (selected), User profiles, and Task profiles. The 'Servers' section contains a table with columns 'Address' and 'Name'. To the right of the table are buttons for 'Add', 'Delete', 'Edit', and 'Test'. Below the table is the 'Server info' section, which includes input fields for 'Host name or IP', 'Username', 'Password', and 'Verify password'. At the bottom right of the 'Server info' section are 'Save' and 'Cancel' buttons. At the very bottom of the window are 'OK' and 'Cancel' buttons.

Servers	Lists all of the Hyper-V Servers — by IP address or name — that are available for conversion. Allows you to add, edit, delete, and test connectivity.
----------------	---

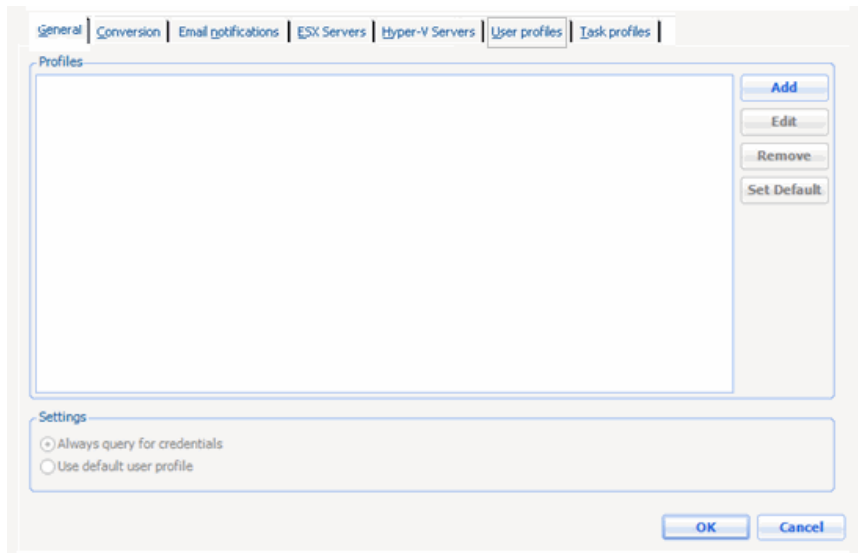
Server Info	<p>The fields on this tab include general properties for the Hyper-V Servers in the system:</p> <ul style="list-style-type: none">• Host name or IP• Username• Password• Verify password <p>Note The Username and Password should match the credentials used when configuring the Hyper-V target share. See “Target Folder” on page 57 for more information.</p>
--------------------	--

Target Folder

Conversions to Hyper-V servers require a shared folder to store the VM files. This folder can be located on the Hyper-V server, or on another network location.

Hyper-V conversion tasks will need to be configured using a user account with **Full Control** permissions for this share.

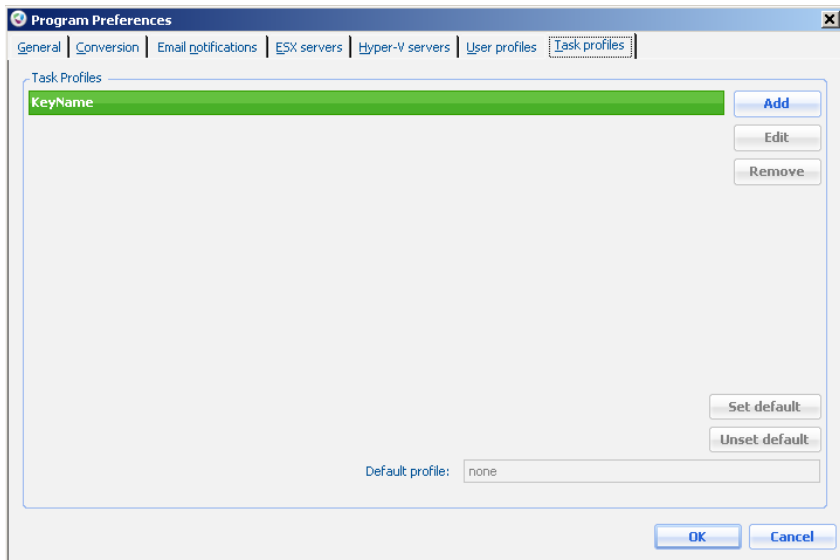
User Profiles



Profiles	Lists the configured user profiles. The default profile is in bold. It allows you to add, delete, and edit user profiles, and to set a default profile.
Settings	<p>Always query for credentials: This option will require credentials or a user profile to be provided during job configuration.</p> <p>Use default user profile: This will use the default profile for all configured jobs. You will have the option to override this during job configuration.</p>

Task Profiles

A Task Profile is a set of conversion task settings that can be saved independent of conversion type. If you set a default profile, this will be applied to all new conversion jobs that you create. Settings that do not apply to the current conversion type (i.e., P2V settings for a V2P task) will be ignored. When you set a task profile as the default, it is displayed in boldface in the main dialog area; it is also displayed in the Default profile field.



Applying a Task Profile

When you apply a task profile to a task, all values from that profile are copied for later application to the respective fields of the new task.

Settings are copied FROM **Task Profile**, TO **Task's** respective fields.

If you later change the task profile, these changes will not be applied to any tasks already assigned. To change the Task, reapply the Task Profile.



Task Profiles - Properties

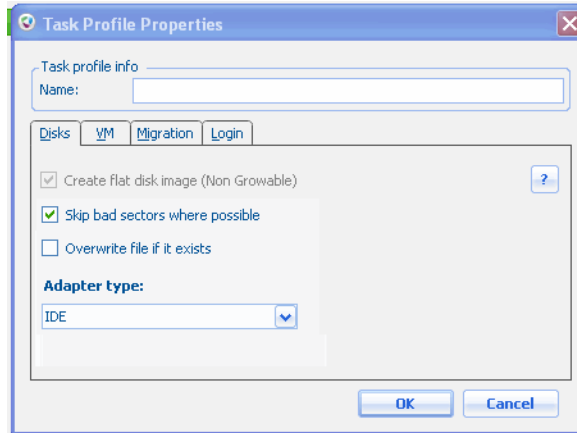
Access this dialog through **Tools > Preferences > Task Profiles > Add**. The settings that are used to build these profiles are not tied to specific source or target server types.

Note The Name field in the Task profile info area is a required field.

The Task Profile Properties dialog contains several tabs:

- “Disk tab” on page 61
- “VM tab” on page 62
- “Migration tab” on page 65
- “Login tab” on page 66

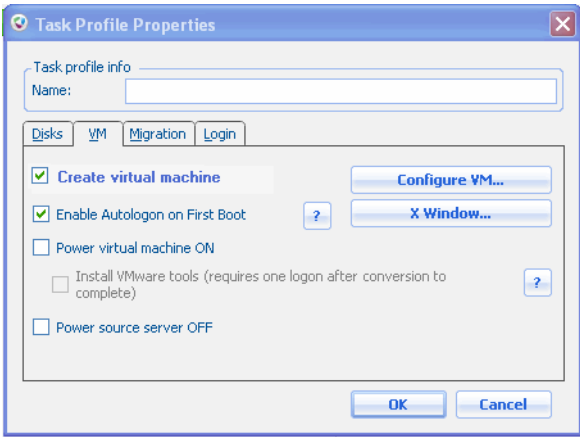
Disk tab



Create flat disk image (Non Growable):	<p>De-selecting this checkbox will enable the creation of thinly provisioned disks for vSphere (ESX 4) targets. Flat format is required for ESX Server 3.x / 3i, but enabling this option can slow the conversion process.</p> <p>Note This must be enabled in order to resize volumes during conversion.</p> <p>Note This option should be selected when converting to an RDM.</p> <p>Note This option applies only to P2V Windows tasks; for P2V Linux only flat disk images are available.</p>
Skip bad sectors where possible:	<p>Turns on/off ignoring disk read errors. If this option is off, conversions will fail if a bad sector is found in the source hard drive during capture.</p> <p>Note This option is available for P2V Windows only.</p>
Overwrite file if it exists:	<p>If this option is selected, vConverter will overwrite VM files if they already exist on the target virtual server (or in the target shared folder). Otherwise, conversion will fail.</p>

Adaptype:	<p>Adapter type for created VM and captured disks. Affects the VM configuration file and set of drivers added to the converted OS during migration.</p> <p>The Adapter type drop-down contains a list of virtual disk adapter types for VMs and captured disks. If a target VM platform supports a particular adapter type, it will be listed in this field. Available types include:</p> <ul style="list-style-type: none">• IDE• LSI Logic• Bus Logic <p>Note For Windows 2000, select Bus Logic. For Windows 2003 and XP, select LSI Logic.</p>
------------------	---

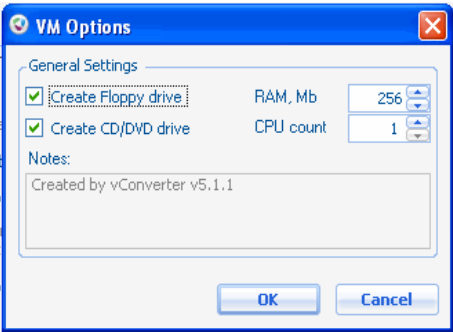
VM tab



Create Virtual Machine	<p>Instructs vConverter to create a VM descriptor file and registers the VM in the target environment (ESX Server/Hyper-V). Otherwise, only a set of disk image files is created, which you must attach to the VM manually.</p> <p>This checkbox can have three states:</p> <ul style="list-style-type: none"> • Checked (VM will be created) and disabled (you cannot change the setting) if the target is an ESX server with a VA • Unchecked (VM will NOT be created) and disabled (you cannot change the setting) if the target is a shared folder • Checked (VM will be created) and enabled (setting can be changed) if the target is an ESX server without VA
Enable Autologon on first boot	Enables automatic login of specified user in converted VM during first boot.
Power Virtual Machine ON	Runs the VM after the conversion is complete. Applicable only for ESX Server, and Hyper-V targets.
Power Source Server OFF	Instructs the source server to shut down after completing a successful conversion.
Install VMware Tools	<p>Adds VMware Tools to a VM on ESX Server (Hyper-V Integration Services package to VMs on Hyper-V). vConverter will automatically power on the VM.</p> <p>When you select this setting for ESX Server, vConverter instructs the VM to boot and to acquire VMware Tools from the host on which the VM is installed. For example, if a VM is running on ESX 3.0.1, it will get VMware Tools from 3.0.1.</p>
Configure VM	Opens the VM Options dialog - see <i>VM Options Dialog</i> below.

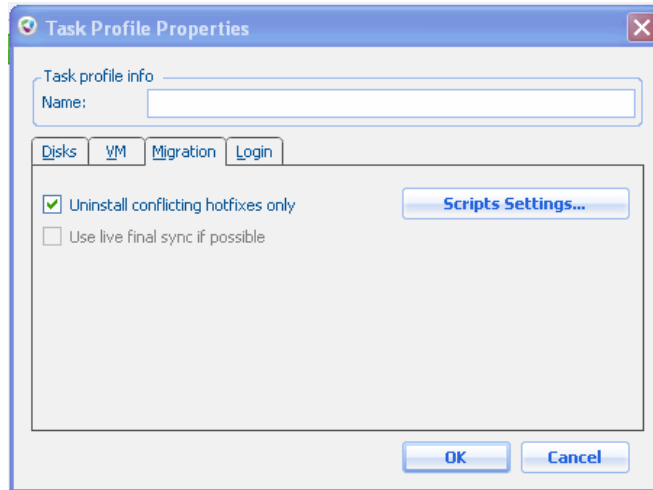
X Window	Opens the X Window Options dialogue that allows you to configure vConverter behavior towards source servers running X Window System.
-----------------	--

VM tab - VM Options Dialog



Create Floppy Drive	<p>This option to configure the target to feature a floppy drive.</p> <p>Note When the target server is Hyper-V, will be checked and disabled. The floppy will be created by vConverter (Hyper-V will not support a VM with no floppy drive).</p>
Create CD/DVD Drive	Select this option to create a CD/DVD drive on the target.
RAM, MB	Configure RAM on the target through this field.
Notes (text box)	<p>This field is auto-populated with “Created by vConverter 5.1.1.X.”</p> <p>You can alter this and include additional text when editing VM Properties of the task.</p>
CPU Count	Configure the number of CPUs on the target VM through this field.

Migration tab



Uninstall Conflicting Hotfixes

Microsoft occasionally releases a hotfix with an updated HAL.DLL that supersedes the file of the source format included in the current SP. This can cause a VM not to boot. To prevent this, keep the Uninstall Conflicting Hotfixes option enabled. This uninstalls hotfixes that could otherwise impact kernel files during system migration. This option is enabled by default.

Note This option applies only to P2V conversions of Windows 2000 and Windows Server 2003. For Windows Vista and later versions, there is no need to uninstall conflicting hotfixes.

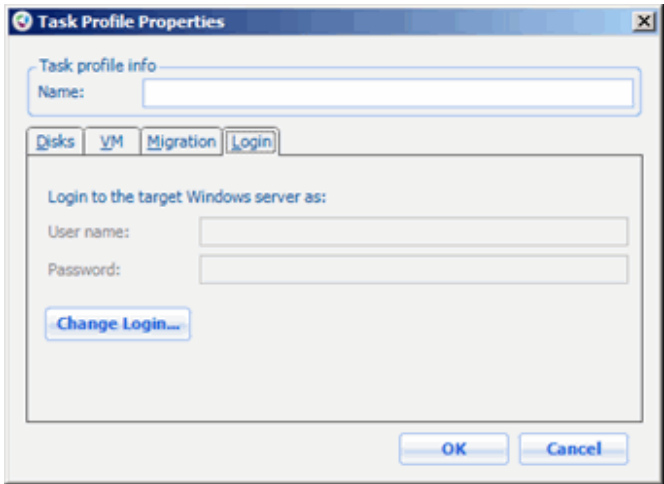
Use Live Final Sync if Possible

If checked, vConverter will attempt to perform a hot final synch if possible for both Continuous Protection and Cutover Tasks. If not checked, vConverter will simply do the final synch in cold mode.

Note This option is not supported for Cutover Tasks running on Windows 2000.

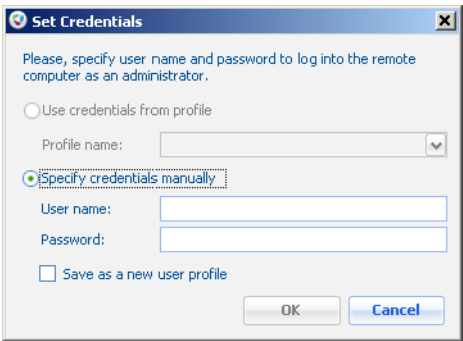
Script Settings	Opens the Scripts Settings dialog. Use this dialog to insert scripts (.cmd, .bat) and dependent applications (.exe, .dll) into a target VM to run on the first boot.
-----------------	--

Login tab



vConverter can also use network shares as a conversion target and as a source for V2P conversions. The credentials used to login to the shared folder are displayed here. To configure or change the credentials, click **Change Login**.

Login tab - Change Credentials Dialog



Use credentials from profile	Select this option to use a configured User Profile. Select a profile from the menu.
Specify credentials manually	Select this option if you do not want to use or configure a user profile. Select Save as a new user profile to create a user profile based on the credentials entered.

Configuring Setup Files

To convert a Windows system, vConverter requires access to certain setup files from the Windows installation. On default Windows installations, these files are located in one of these locations:

- "%windir%\Driver Cache
- "%windir%\ServicePackFiles

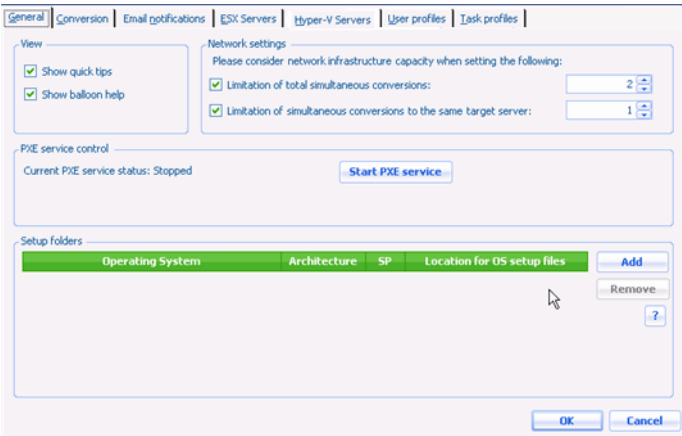
When system files required for conversion are not found in the system being converted, vConverter will check the configured setup file location. If the selected OS type has been converted previously, the files have been cached and vConverter will not need to capture them from the source. If the OS type has not been converted, and the setup files are not available on the source or at a configured location, the conversion will fail.

To configure Setup Files:

The procedure below needs to be completed for each OS type. For the purposes of Setup Files, the 32-bit version of a given OS is a separate OS type than the 64-bit version of the same OS.

Step 1: General Tab

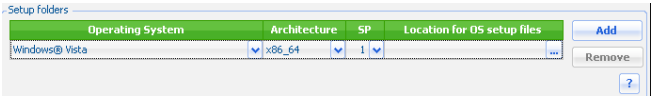
- 1 From the vConverter UI, click **Tools**, then **Preferences**.
- 2 The **Program Preferences** dialog opens to the General tab.



Step 2: Add New Record

- 1 In the **Setup Folders** section, click **Add**.

A new entry is created.



- 2 In the **Operating System** column, select the correct OS.
- 3 In the **Architecture** column, select the appropriate bit level for the source OS.
- 4 In the **SP** column, select the service pack level for the source OS.

- 5 In the **Location for OS setup files** column, browse to the location of the setup files for the correct OS.

Note Setup files can be located on a network share or on a computer running the vConverter. Service Pack files can be extracted to a single location for easy access. The network share should be available to be read by the current logged on user.

- 6 Click **OK**.

Adding Source Content

This chapter details the different ways in which you can add source content to vConverter.

This chapter contains the following sections:

- Source Content..... 71
- Network Browser 71
- Importing Source Systems..... 72
- Adding Linux Hosts..... 74
- Cold Cloning Ready..... 74
- Adding Physical Targets 75

Source Content

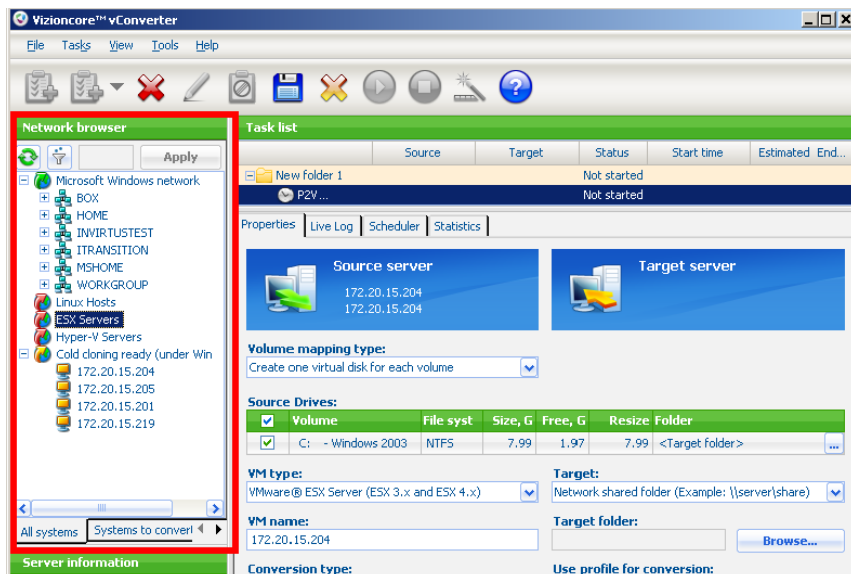
The first step in the conversion process is to add source content - physical or virtual servers that are to be converted by vConverter.

Network Browser

The Network Browser is available on the left side of the vConverter interface. The Network Browser pane displays the domains and workgroups that include all servers available for conversion. This pane features three tabs:

- All Systems
- Systems to Convert
- Virtual Machines

It also displays ESX Servers, Hyper-V servers, and, if accessible, Cold cloning ready.

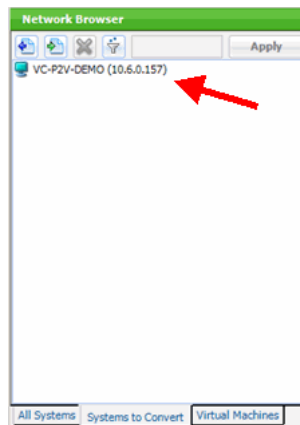


The most direct way to add a source server is to drag it from the Network Browser to the Source hotspot. For larger environments, you may want to visually isolate your source

systems from the rest of the network. You may do this by moving them to the Systems to Convert tab.

To add source content with the Systems to Convert tab:

- 1 In the **Network Browser** pane, click the **All Systems** tab.
 - 2 Right-click the desired server. Select **Add to Systems to Convert**.
- Note** Only one server may be selected at a time.
- 3 Click the **Systems to Convert** tab.



The selected server will appear on the **Systems to Convert** tab.

- 4 Repeat to add all desired servers.

Importing Source Systems

To expedite the process of add a large number of sources, vConverter can import source content from a CSV file.

Before starting this process, make sure that you:

- Confirm that the CSV file is available.

- Confirm that the CSV file contents include the appropriate columns. Different source systems require different information to be properly imported.


Note The CSV file fields should not contain leading or trailing spaces. Any leading or trailing spaces will be incorporated into vConverter files, and may create import failures.

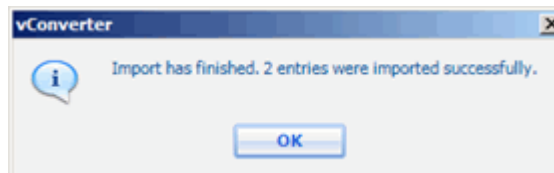
The table below shows the fields available in the CSV, and lists which source systems use which heading. For example, for importing machines booted to the VistaPE, only the name field is required.

Note The CSV should not include column labels.

Name	UserID	Password	SSHUserID	SSHPassword	SSHPort
VistaPE	Windows	Windows	Linux	Linux	Linux
Windows	Linux	Linux			
Linux					

To import source content:

- 1 In the **Network Browser** pane, click the **Systems to Convert** tab
- 2 Click the **Import** icon .
- 3 On the Windows dialog, select the CSV file that you want to import. Click **Open**.
A confirmation message is displayed. The hosts that you imported are displayed in the Systems to Convert tab.



- 4 Click **Ok**.

The systems will now appear in the **Systems to Convert** tab.

Adding Linux Hosts

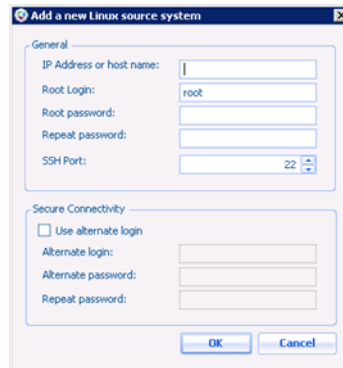
Linux servers are not automatically discovered and must be added manually prior to configuring a conversion task.

To add a Linux host:

- 1 In the **Network Browser** pane, right-click on the **Linux Hosts** node.
- 2 Click **Add Linux source**.



- 3 Complete the **Add a new Linux source system** dialogue.



Quest recommends using the **Secure Connectivity** option. vConverter will connect with this alternate login, then SU to gain appropriate authority.

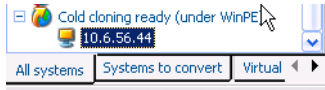
- 4 Click **OK**.

Cold Cloning Ready

Source systems that have been booted (automatically or manually) to the VistaPE environment are said to be “Cold Cloning Ready”.

- 1 Boot the target server using the vConverter VistaPE boot environment. This may be remotely via the vConverter PXE service or manually with a CD.

- 2 Once booted, the target server will appear under the **Cold Cloning ready (under WinPE)** node.

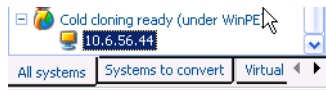


Adding Physical Targets

Adding a physical target is very similar to preparing a physical server for cold conversion. Physical servers (targets for V2P conversions) need to be booted into the VistaPE environment before they can be selected as a target.

To add a physical target:

- 1 Boot the target server using the vConverter VistaPE boot environment. This may be remotely via the vConverter PXE service or manually with a CD.
- 2 Once booted, the target server will appear under the **Cold Cloning ready (under WinPE)** node.



- 3 Select the desired target server, and right-click. Select **Add to systems to convert**.

or

Drag the target server to the **Target Server** hotspot.



- 4 The **Target** field will populate with the target server information.

Windows P2V Conversions

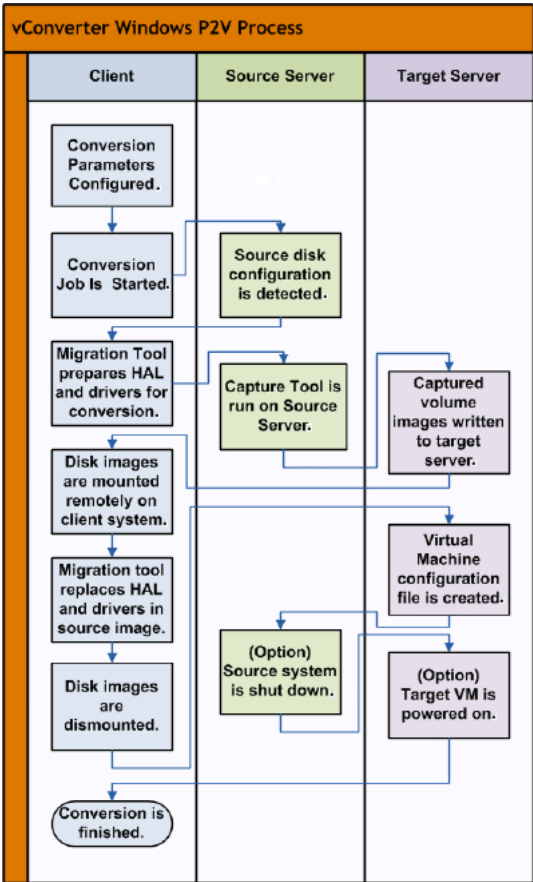
This chapter provides information on creating P2V conversion

This chapter contains the following sections:

Conversion Overview	77
Hot Conversions	78
Converting with Remote Cold Cloning (RCC)	79
Converting with Synchronized Cutover	80
Converting with Different Destinations Cutover (DDC)	81
Creating Conversions	82
Identifying Source Servers	83
Creating Folders and Tasks	86
Configuring Source and Target Settings	88
Saving and Running a Task	97
Conversion Tutorial	100
Additional Task Procedures	104

Conversion Overview

The standard Windows P2V process follows the basic workflow described below.



The main components of the conversion process are the Drive Capture Tool (which sends the data) and the Target Server Agent (which receives the data).

After the job is executed and the Drive Capture Tool (DCT) starts sending data to ESX, it is detected by the Target Server Agent (TSA) service running. This starts the server component particular to that job. Multiple jobs can run at the same time and each job will use its own server component instance.

To transfer data to the target, a new VMDK file is created. VMDKs are created in a sparse (Growable) format by default, but can optionally be created as flat disks. You can specify a unique VMDK file and datastore for each Windows volume.

The TSA receives data from the DCT and places it in the VMDK file. If a block of zeroed data is detected by the DCT, it is ignored. The zeroes already exist in the

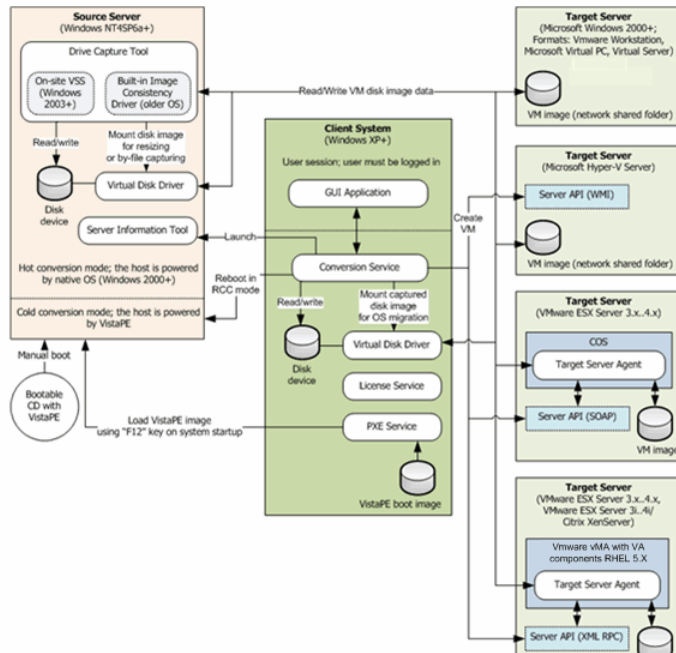
VMDK, so there is no reason to overwrite them.

(Optional) After all data has been transferred to the VMDK file, the server component can resize the files based on job configuration. In this case, the NTFS partition is modified as well.

The server component performs the conversion and creates a bootable instance of the VM with the proper drivers. A VM is created and registered on the ESX host based on job configuration settings that include assigned memory, VHD, and virtual network

assignment. The server component terminates and enters a wait state controlled through the TSA to anticipate the next job.

An architectural representation of the Windows P2V process is shown below.



Note A P2V conversion using the VA as a target will not finish successfully if the resulting VM will have the same name as another VM within the vCenter infrastructure. The error message "Can't find proper disk-name amount attached disks to VA" will be displayed. Additionally, several indexed VM copies may be created on the target ESX host.

Hot Conversions

Standard Windows P2V conversions occur in the "hot" mode. Hot cloning is the process of taking a live source system and creating a complete copy of it in the form of a VM. To yield a data-consistent image, vConverter Consistency Driver (VCD) and MS VSS assist in the process. VCD captures write requests from the file system and retains the

former state of the updated disk sectors. VCD is unaware of running applications on the source and therefore cannot save associated data for backup. This is where MS VSS steps in-telling databases, application servers, and so forth to flush uncached data to disk so that backup can proceed.

Converting with Remote Cold Cloning (RCC)

Cold cloning requires a reboot of the source into vConverter's boot image. During cold cloning, there is less chance of data corruption mainly because no data files are opened. There are two ways to complete an RCC conversion with vConverter - automated and manual.

During an automated RCC conversion, when you select Remote Cold Cloning (RCC) as the conversion type, vConverter sends a boot loader and its boot image over the network and loads them on the source system. vConverter uses these to reboot the source at a time that you designate, and the conversion begins. When the system has booted into the VistaPE environment, the original boot loader is restored, so next time the system will boot normally.

When an automated RCC conversion is unavailable for any reason (e.g. replacing boot loader is not possible), one of two manual methods can be applied. You can create a boot CD from the ISO boot image and load the source server, or can you download and install the vConverter PXE service on the vConverter system. You can then boot the source system to the VistaPE boot image remotely by pressing F12 key during reboot. In both these cases the source system is displayed under a special tree item in vConverter's Network Browser, named "Cold Cloning Ready". These systems need to be converted or scheduled separately from other conversion tasks.

vConverter's VistaPE Image

The VistaPE boot image is a customized version of Windows PE 2.0 system, based on Windows Vista core. It contains base OS, with wide set of drivers, and also includes the following components:

- **PE Network Configurator** utility to change various network settings, such as IP address, link speed, network computer name etc. PE Network Configurator starts automatically when Windows PE loads.
- **Device Installer** utility allows dynamically installing of drivers for unrecognized devices without system reboot. For more information on installing drivers, see [Using the vConverter VistaPE ISO Image](#) in the Appendix. The Driver Installer utility can be launched from the VistaPE Start menu.

For procedures specific to RCC, see [Additional Task Procedures](#) at the end of this chapter.

- **Hardware Adaption Wizard** utility will help install the drivers externally if you cannot boot your Windows operating system due to missing drivers.

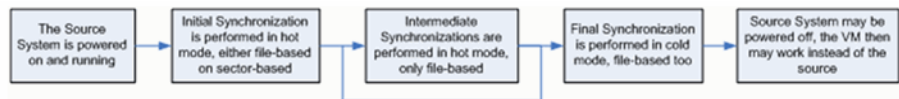
Note The VistaPE will assign the volume letter "X" to it's own RAM drive volume. If the VistaPE is used to convert a physical volume with the same volume label, the PE environment will become unavailable to vConverter. Please ensure that source systems do not use the volume letter "X" when converting with the VistaPE environment.

Converting with Synchronized Cutover

To minimize the cutover window, Synchronized Cutover completes a full conversion as the source continues to run. Synchronization takes place continuously until the final commit occurs during the cutover window. In other words, vConverter completes an initial conversion. Then, at intervals that you schedule, vConverter determines which files have changed and synchronizes only those files. During the final synchronization, vConverter captures the remaining changes and places them on the target. This allows a narrow cutover window and fast transition from physical to virtual.

Note For Windows 2000, all Intermediate and Cutover steps will be performed in cold mode. If you have DHCP, make certain the VM is added to the task using its name, not it's UIP address (the IP address could be changed by DHCP after VM reboot, leading to a failed task).

The sequence of activities during Synchronized Cutover is displayed below:



How Synchronized Cutover Works

The initial conversion can be done in block mode if there is no resizing required. Otherwise file mode is used. It is important to note that during the initial conversion and subsequent synchronizations, neither VSS nor the Consistency Driver are used.

Intermediate synchronizations are done only in file mode, again without consistency compliance. The target VM image, after the initial conversion and any subsequent

synchronizations, is not complete and is not bootable. The final synchronization performs necessary OS corrections and upgrades the file system to a consistent state. **Only after the final synchronization is the target VM bootable.** Moreover, until the final synchronization finishes, the target VM must not be modified in any way.

The final synchronization is only performed in file mode. This can occur in either hot mode (VSS is required, available for Windows XP and above) or in cold mode.

Note To use Synchronized Cutover, you must have the vConverter PXE Service and VistaPE image installed. For more information, please see the *vConverter Installation and Setup Guide*.

For procedures specific to Synchronized Cutover, see [Additional Task Procedures](#) at the end of this chapter.

Converting with Different Destinations Cutover (DDC)

DDC is very similar to Synchronized Cutover, except that with DDC you can change the location of the target image before the final synchronization. You can write the disk image file(s) into one location, move the disk image files into other location, and then specify this new location in task properties to continue cutover operation.

One possible use case for DDC is as follows:

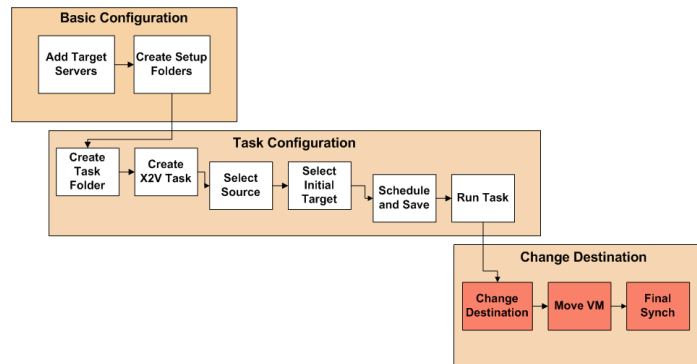
You create a conversion task using a local VMware ESX Server as the target. After the initial conversion and some subsequent synchronizations, you replicate the local ESX Server to a remote site (a satellite office or perhaps a hosting provider). You can simply pause the conversion task and reconfigure the conversion target to match the new location. When you activate the task, the final synchronization will occur at the scheduled time to the new target.

Intermediate synchronizations are done only in file mode, again without consistency compliance. The target VM image, after the initial conversion and any subsequent synchronizations, is not complete, and is not bootable. The final synchronization performs necessary OS corrections and upgrades the file system to a consistent state. **Only after the Cutover Synchronization is the target VM bootable.** Moreover, until the final synchronization finishes, the target VM must not be modified in any way.

The final synchronization is only performed in file mode. This can occur in either hot mode (VSS is required, available for Windows XP and above) or in cold mode.

The Different Destinations Cutover P2V process is described in the flowchart below and in the sections that follow. Note that there are multiple optional configurations available. This document is intended only to illustrate the basic functionality.

The process of configuring a Different Destinations Cutover conversion is very similar to configuring a basic P2V conversion. The tasks represented by the red boxes are unique to Different Destinations Cutover.



For procedures specific to Different Destinations Cutover, see [Additional Task Procedures](#) at the end of this chapter.

A Note About Continuous Protection

While Continuous Protection conversions are similar in many ways to the conversion types listed above, Continuous Protection is a licensed feature, and as such will be documented in a separate chapter. Please see the [Continuous Protection](#) chapter for more information.

Creating Conversions

Creating a conversion task in vConverter requires user interaction in each of four main areas:

- [Identifying Source Servers](#)
- [Creating Folders and Tasks](#)
- [Configuring Source and Target Settings](#)

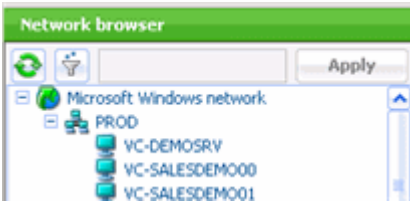
- [Saving and Running a Task](#)

Each of these operations can be performed in several ways, and have a variety of configuration options. The sections below explain the options and configurations in each operation. Most of the information below is applicable to all conversion types. Where a given conversion type requires a change from the standard or more information, this information will be called out separately.



Identifying Source Servers




For standard P2V conversions, the source servers are the physical or virtual systems that you wish to virtualize. These systems are identified during an automated discovery each time vConverter launches. The list of discovered systems is displayed in the All Systems tab of the Network Browser pane on the left side of the user interface.

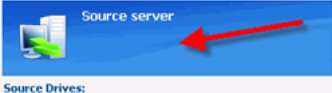
Note vConverter will use up to 20 scan threads for network discovery. Each domain requires a scanning thread. The data displayed in this area is captured and refreshed by WMI, which requires TCP port 135 to be available.



The Network Browser pane includes six points for user interaction:

	<p>Refresh: Refreshes the tree in the All Systems view of the Network Browser pane and launches scanning of a specified domain.</p>
	<p>Filter On/Off: Enables or disables filtering of the active tab of the Network Browser pane.</p> <p>Note Filtering does not apply to the results of the Virtual Machines tab.</p>




	Enter the criteria by which you wish to filter in this text box. Filtering is case-sensitive and applies system names or IP addresses. The asterisk (*) can be used as a wild card.
	Click this button to filter the results of the active table. Note This button is not enabled when the Filter toggle is off.
	<p>If you right-click on a source server, a menu displays several options:</p> <ul style="list-style-type: none">• Set as source: This option is only enabled if you have an active configuration task open. Selecting this option will set the selected system as the source server for the active configuration task, using the settings in the default task profile.• Set as target: This option is only enabled if you have an active configuration task open. Selecting this option will set the selected system as the target server for the active configuration task, to a network share, and to conversions to ESX/ESXi/Hyper-V hosts. For P2V tasks, use this option only if you want to convert to a network share, ESX, ESXi, and Hyper-V hosts.• Refresh: Refreshes the tree in the All Systems view of the Network Browser pane.• Change login: Allows you to select a User Profile to use for the selected machine, or to enter credentials manually.• Add to systems to convert: Copies the selected server to the Systems to Convert view. From there, you can select any server as source or target.• Create conversion task: This option is enabled only if you do not have an active configuration task. Selecting this option will create a new P2V task, with the selected source set as the source server. The default task profile will be used. If you have not selected a default task profile, you will receive an error message.

Drag and Drop	<p>This option is only available if you have an active configuration task open. You may drag a selected server to the Source Server hotspot:</p>  <p>Using this option will set the selected system as the source server for the active configuration task, using the settings in the default task profile.</p>
----------------------	--

Systems to Convert tab

The Network Browser pane includes a Systems To Convert tab. The Systems to Convert view features all of the servers that were copied from the All Systems tree. You can designate any of the servers as source or target. This view features several icons and a shortcut menu with commands. When you first access this view, only the Import systems to convert icon is enabled. The other icons will be enabled as soon as you copy a server into the view.

The Systems to Convert tab includes the Filter icons from the All Systems View tab, in addition to three others:

	Export systems to convert - Use this icon to create a CSV file containing the contents of the Systems to Convert tab.
	Import systems to convert -Use this icon to import source systems using a CSV file. See Importing Systems to Convert for more information.
	Remove: This icon is only enabled when a system is selected. Click this button to remove a source system from the Systems to Convert tab.

Importing Systems to Convert

vConverter can import source systems using a CSV file. This can be a file exported by vConverter, or a file that you compile. If you create a manual CSV file, it must include

the appropriate columns. Different source systems require different information to be properly imported.

Note The CSV file fields should not contain leading or trailing spaces. Any leading or trailing spaces will be incorporated into vConverter files, and may create import failures.

The table below shows the fields available in the CSV, and lists which source systems use which heading. For example, for importing machines booted to the VistaPE, only the name field is required.

Note The CSV should not include column labels.

Name	UserID	Password	SSHUserID	SSHPassword	SSHPort
VistaPE	Windows	Windows	Linux	Linux	Linux
Windows	Linux	Linux			
Linux					

To import the CSV, on the Network Browser pane, go to the Systems to Convert tab and click the Import Systems to Convert icon.

Creating Folders and Tasks

In vConverter, each task has to be placed into corresponding container, or folder. Folders are a way to put similar conversion tasks together. It is possible to rename folders and tasks, create and remove tasks and folders, and move tasks between folders. Also it is possible to run or stop the entire tasks within given folder with one click, using Run and Stop commands.

Some common use cases for task grouping are shown below:

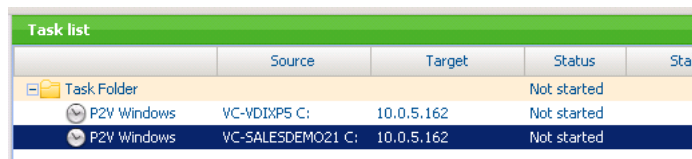
- **Per Host** - Assume that you have to convert four hundred source servers to ten ESX Server hosts. A logical grouping would be to create a Folder for each host, with each folder containing the tasks required to convert 40 source systems.
- **By Conversion Method** - Assume again that you have to convert four hundred source servers to ten ESX Server hosts. Another grouping option would be to group by conversion method. Perhaps 60 of the 400 servers require the data consistency of Cold Cloning, while 150 require the reduced downtime offered by

Synchronized Cutover. It may make sense to create a folder for each of these conversion methods, with a remaining folder for the standard conversions.


- **By Schedule** - Given the length of most virtualization projects, it may aid project management to create folders for each unit of your project timeline (Week 1, Week 2, etc).

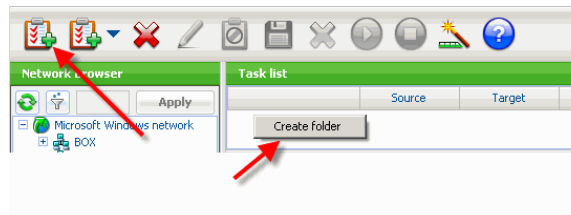
Creating a Folder

Folders and tasks are managed via the Task List pane of the vConverter UI.



	Source	Target	Status	Star
Task Folder			Not started	
P2V Windows	VC-VDIXP5 C:	10.0.5.162	Not started	
P2V Windows	VC-SALESDemo21 C:	10.0.5.162	Not started	


You can create new folders by clicking the New Folder icon  in the vConverter toolbar. You may also right-click in the Task List pane and select **Create Folder**.



You must create at least one folder. You may add as many tasks to that folder as appropriate. Each task can convert one source system.

Creating a Task

Each source system to be converted requires a task. While folders are merely devices for logical grouping, tasks contain the actual configuration data.

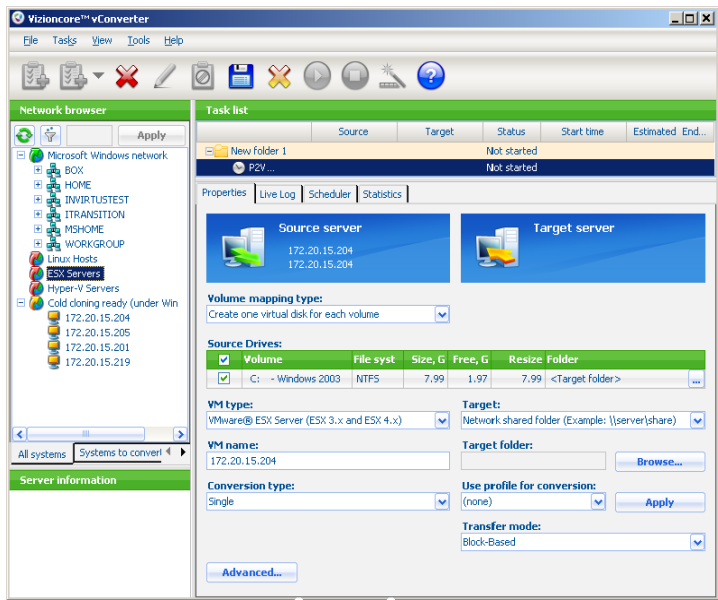
You can create a new task by clicking the New Task icon  in the vConverter toolbar. You may also right-click on a folder in the Task List pane, and select **P2V/V2V**.

You may also use the Conversion Wizard to create a task. The Conversion Wizard is

launched by clicking the  icon in the vConverter toolbar.

Configuring Source and Target Settings

Source and target configuration is done through the Task Properties pane of the vConverter UI. With the exception of the Advanced Options dialogue, all of the configuration options are viewable on the same pane.




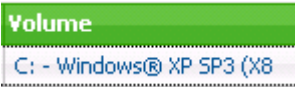




Source Options

Most of the configuration required relates to target settings, but there are some key source specific settings that can help you get the most out of your conversions. Note that none of these change anything on the actual source server.


The Source Drives section of the Task Properties pane provides information on the source systems existing volumes, and allows you to selectively convert and resize each drive.



The table below describes the actions available in the Source Drives section.

	Select Drives: Each drive in the source system will be listed. Use the checkbox in this column to select (or de-select) which drives in the source system to convert. Select the checkbox in the header row to select (or de-select) all of the drives at once.
	Volume: The available drives are described in this column.
	File system: Identifies the file system type of the listed volume.
	Size, GB: Identifies the size of the listed volume.
	Free, GB: Identifies the amount of free space available on the listed volume.
	<p>Resize: Use the arrows in this field to enter a new size for a volume. You cannot make a partition smaller than the amount of data used in the volume.</p> <p>Note Resizing volumes to a smaller size is only possible if you use the flat disk image format. If this is not part of your default Task Profile, vConverter prompts you at the time you configure the resize.</p> <p>Note File transfer mode is generally faster for resize operations, but slower for the actual data capture. vConverter will recommend file-transfer, but either mode is supported.</p>

Folder

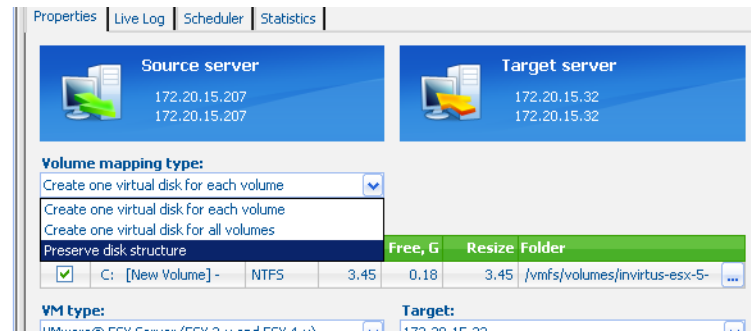
Folder: Each volume may be converted to a separate datastore location. Once a target server has been selected, click the browse icon  to view the datastores or network shares available to the target server.

Note If you do not make a selection here, the target selected in the Target Folder field of the Target section will be used.

Volume Mapping Type

For each Windows P2V task, the kind of disk mapping is selectable from the Task list pane.

This feature is available when target is Shared folder, Hyper-V or ESX (with no VA).



By specifying the desired disk mapping, VMDK file creation methods and source disk mapping can be specified.

The following options are available:

- **Create one virtual disk for each volume** -- each source volume should be placed in separate VMDK file.
- **Create one virtual disk for all volumes** -- all source volumes will be placed in one VMDK file (this option disables the ability to specify different target folders for each disk).
- **Preserve disk structure** -- source disk structure (layout and size) will be preserved.

Note You will not be able to configure resize or specify different target folders for **Preserve disk structure** option. Also, the Preserve Disk Structure and Create One Virtual Disk for all volumes are available for ESX targets and shares only.

One VMDK for all source disks option disallow you to specify different target folders for each disk.

VM Options

In the VM Options sections you may configure the VM type and name, as well as the type of conversion.

VM type:

VMware® ESX Server (ESX 3.x and ESX 4.x)

VM name:

Conversion type:

Single

VM Type	<div>Use this menu to select the type of VM you want to create. Supported options are:<ul style="list-style-type: none">VMware ESX Server (3.x, 4.x)Microsoft® Hyper-V Server</div>
VM Name	<div>Enter the name for your VM. By default, this field populates with the machine name when a source is added to the task. You may change it as desired. This will be the name of the VM in the target hypervisor.</div> <div><div>Note</div><div>The target VM name can contain upper and lower case letters from the latin alphabet (a-z, A-Z), numbers from 0-9, and the characters "-" and "_".</div></div> <div><div>Caution</div><div>To avoid errors, please ensure that the VM name is unique within your environment.</div></div>

Conversion Type	<p>Use this menu to select the conversion type. Available options are:</p> <ul style="list-style-type: none">• Single• Remote Cold Cloning• Synchronized Cutover• Different Destinations Cutover• Continuous Protection <p>Note For V2P Windows and P2V Linux conversions, only Remote Cold Cloning is available as a conversion type.</p> <p>For more information about conversion types, see “Features and Functions” on page 23 or “Conversion Overview” on page 77.</p>
------------------------	--

Target Options

In the Target section, you can chose the conversion target, the default target folder or datastore, and the user credentials to use for conversion. The transfer mode is also selected in the target section.

Target:

Network shared folder (Example: \\server\share)

Target folder:

Browse...

Use profile for conversion:

(none)

Apply

Transfer mode:

Block-Based



There are different ways to configure a target in vConverter, depending on the type of target. Most customers will convert directly to the virtualization platform of their choice (VMware ESX, VMware ESXi, or Microsoft Hyper-V). These target servers must first be added using the vConverter Preferences dialogue (see [“Configuring vConverter”](#) on page 44). Once the target servers are added and a selection is made in the VM type menu, the Target menu will populate with the available targets.

Sometimes it is necessary to use a network share as a configuration target. In this case, the simplest configuration method is to simply find the server hosting the share in the

Network Browser pane, and drag it to the Target Server hotspot. You may also right-click and select **Set as Target**.



The table below describes the actions available in the Targets section.

Target	<ul style="list-style-type: none">When converting to a hypervisor host, use this field to select that host as a target. <p>Note The server can be specified manually or could be added via Tools>Preferences. Use the appropriate tab for the chosen virtualization platform.</p> <ul style="list-style-type: none">When converting to a network share, simply select Network shared folder from this menu.
Target folder	This field displays the path to the configured target folder or datastore. You may type the path manually or use the Browse button to browse to it.
	Use this button to browse to the desired target folder or datastore. A target server must be configured and a target type must be selected before browsing.
User profile for conversion	Use this field to select the desired user profile for conversion. For more information on user profiles, see “ User Profiles ” on page 57.
	Use the Apply button to apply the selected user profile.

Transfer mode	<p>There are two available transfer modes: block and file. Use this menu to select the desired transfer mode.</p> <ul style="list-style-type: none">• Block: Block cloning uses an Application Programming Interface (API) from the source OS that allows you to skip unused sectors. This is the default transfer mode, yielding an exact binary copy of a source volume.• File: File cloning of a source occurs on the file system level. The target is mounted to the source and a full file synchronization occurs-directory structure from the source and all file content are updated to the target. File cloning is ideal for capturing large source volumes to a target with limited storage capacity. To ensure consistency during hot cloning, use the file method with MS VSS.
---------------	--

Advanced Properties

You may access the Advanced Task Properties by clicking **Advanced** on the Task Properties pane. The Advanced Task Properties dialog contains many of the same options as the Task Properties tab.

The table below summarizes the options. For more information, see “[Task Profiles - Properties](#)” on page 60.

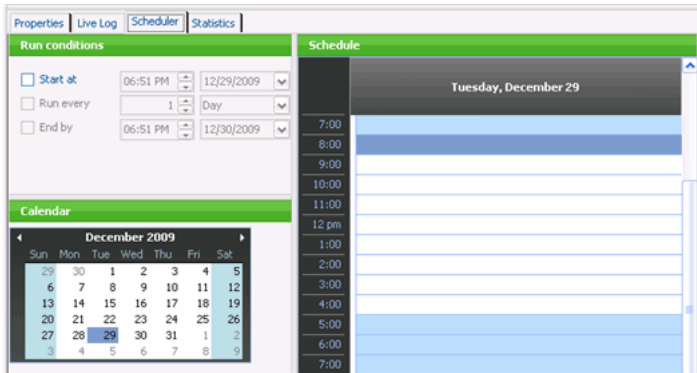
Disk Tab	<p>This tab features these settings:</p> <ul style="list-style-type: none">• Create Flat Disk Image (Non Growable)• Skip Bad Sectors where Possible• Overwrite file if it exists <p>The Adapter type dropdown contains a list of virtual disk adapter types for VMs and captured disks. If a target VM platform supports a particular adapter type, it will be listed in this field. Available types include:</p> <ul style="list-style-type: none">• IDE• LSI Logic• Bus Logic <p>Note For Windows 2000, select Bus Logic. For Windows 2003 and XP, select LSI Logic.</p> <p>For a detailed description of these options, please see “Disk tab” on page 61.</p>
VM Tab	<p>This tab features these settings:</p> <ul style="list-style-type: none">• Create Virtual Machine• Enable Autologon on First Boot• Power Source Server Off• Power Virtual Machine On• Install VMware Tools (Requires one logon after conversion to complete)• Configure VM• Set Login <p>For a detailed description of these options, please see “VM tab” on page 62.</p>

Migration Tab	<p>This tab features these settings:</p> <ul style="list-style-type: none">• Uninstall conflicting hotfixes only• Use Live Final Sync if Possible• Uninstall Software• Service Manager• Script Settings <p>Note The Use Live Final Sync if Possible option applies only to Synchronized Cutover and DDC conversions.</p> <p>You may also configure HAL type and Setup file location from this tab. For a more detailed description of these options, please see “Migration tab” on page 65.</p>
----------------------	---

Saving and Running a Task

Once a task is configured, you may schedule it to run at a certain time, or save it and run the task immediately.

The Scheduler tab of the vConverter UI is shown below:

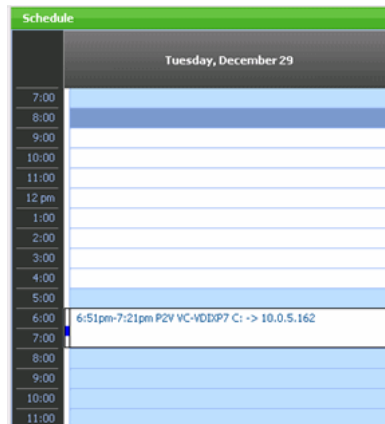




With the Scheduler options, you can quickly set a schedule for a one-off conversion (using only the **Start at** selection), set a recurring schedule (using **Start at** and **Run every**), and use the **End by** option to specify a conversion window. Recurring schedules can be set to run every n th day, week, month, or year, where n is a value from 1 to 99.

Note **Synchronized Cutover** conversions are scheduled as described above, with the exception that the **End by** field is replaced by the **Cutover time** field. This is the time at which vConverter will begin the cutover synchronization.

Note **Different Destination Cutover** conversions are not scheduled differently than standard conversions. The pausing of the task and movement of the target VM are manual tasks performed at will and communicated to vConverter through the Current Activity field. See [Configuring a Conversion with Different Destination Cutover](#) for more information.

Once set, the task will be shown in the daily schedule on the right side of the Scheduler tab.



Use the Save icon  on the vConverter toolbar to save and set the schedule. You may change the schedule by clicking the Edit  icon.

To schedule **Continuous Protection**, **Synchronized Cutover** and **Different Destination Cutover** tasks:

- 1 Configure the scheduler by checking the **Start at** and **Run every** checkboxes, before **CP/SC/DDC** task is successfully saved.
- 2 The first conversion happens at the time set in **Start at**.
- 3 If **Start at** is set later than now, the initial step will be started automatically after task is saved.
- 4 It is possible to change the schedule:
 - after a task is saved
 - after the initial conversion is completed
 - after some intermediate synchs have completed

Workflow 1

- 1 Create a CP/SC/DDC task.
- 2 Set **Start at** = tomorrow, 12.30.
- 3 Set **Run every** = 1h.
- 4 Save the task.
- 5 Run the task immediately.
- 6 The initial step will be performed:
 - Next intermediate sync step will be started tomorrow, 12.30
 - **Start at** field will not be changed to meet real initial step start time

Workflow 2

- 1 Create and configure the CP/SC/DDC task.
- 2 Save CP/SC/DDC task.
- 3 Run initial conversion as planned in **Start at**.
- 4 Wait for step to finish.
- 5 Try to change “Start at” and “Run every”.

It is possible to change **Start at** and **Run every** values; if you change **Run every**, the new value is applied only after one intermediate step will be finished.

For Example:

A task with start time 15:00 and run every 1h, and initial step is finished, and the next intermediate step is scheduled to start at 16:00.

At 15:10 user changes **Run every** to 5 minutes.

The next intermediate step will begin at 16:00. After it is completed, the next step will be started at 16:05.

The initial step will be performed only once. Even if user changes the **Start at** field after initial step was performed, it will have no affect (e.g., the intermediate step will be performed if **Start at** was changed to future time; nothing will be performed if **Start at** was changed to past time).

Conversion Tutorial

Note The procedures in this section are for a standard single conversion. Most of these procedures do not change for different conversion types. Please see [“Additional Task Procedures”](#) on page 104 for information on how the procedures change for each conversion type.

The configuration of target servers and setup folders is usually done independently of task configuration. The instructions for these steps are included below to present a complete procedure. If you have previously configured target servers and setup folders, please skip to [Configuring a Conversion Task](#).

Before creating a standard P2V conversion, it is often necessary to first configure targets and setup folders. Conversion targets may consist of network shares, VMware ESX/ESXi Servers, or Microsoft Hyper-V servers.

Setup folders are locations from which vConverter can pull driver files for the source OS.

Pre-task configurations

The basic configuration are performed via the vConverter Program Preferences dialogue, available at **Tools > Preferences**.

Step 1: Add Target Servers

If you are converting to a network share, you may skip this step.

- 1 On the **Program Preferences** dialogue, select the tab that corresponds to your target platform. Options are **ESX Servers**, and **Hyper-V Servers**.
- 2 Click **Add** to enable the **Server Info** section.
- 3 Enter the server information as appropriate.

Note If you will be using a Virtual Appliance as a conversion target, you will need to complete the VA Config dialogue.

- 4 Click **Save and Install** to save your server configuration.

Step 2: Create Setup Folders

To convert a Windows system, vConverter requires access to certain files from the Windows installation. In most cases, you will find these files in one of these locations:

- "%windir%\Driver Cache
- "%windir%\ServicePackFiles

Occasionally, an administrator will have to remove the files from these locations manually or programmatically by running the SFC /PURGECACHE command. If this has happened to a source server, vConverter will display a message stating that “Required files for this server . . . are missing . . .”.

When system files required for conversion are not found in the system being converted, those files and service pack source files must be extracted and made available in the setup file location.

- 1 From the **Program Preferences** dialogue, click the **General** tab.
- 2 In the **Setup Folders** section, click **Add**.
- 3 Under the **Operating System, Architecture, and SP** column, select the appropriate values.
- 4 In the **Location for OS Setup files** column, insert the *%windir%\Driver Cache* path for a server accessible from the workstation where vConverter is running (e.g., *\\server\c\$\windows\Driver Cache\i386*).

or

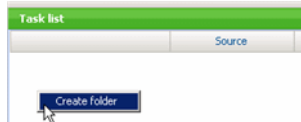
Extract the files to a central location, and enter that location.

Configuring a Conversion Task

The procedure below shows the most common way to configure a task. You may also begin a task configuration from the Systems to Convert tab. For more information, please see [Additional Task Procedures](#).

Step 1: Create a Task Folder

- 1 In the **Task List** pane of the vConverter interface, right-click and select **Create Folder**.



- 2 Right-click the folder, and click **Rename folder**. Enter a descriptive name.

Step 2: Create P2V/V2V Task

- 1 Right-click the task folder, and select **Create P2V/V2V** task.

The **Task Properties** pane is enabled.

Step 3: Select Target Server

- 1 In the **Task Properties** pane, select the appropriate type of VM from the **VM type** field.

The value selected here is determined by the target server to which you are converting. In the example below, we are creating a VM on a VMware ESX Server.



The screenshot shows a section of the Task Properties pane with two dropdown menus. The first dropdown is labeled 'VM type:' and has 'VMware@ ESX Server (ESX 3.x and ESX 4.x)' selected. The second dropdown is labeled 'Target:' and has 'VC-ESX3-LAB09' selected.

- 2 When the **VM type** field is selected, suitable targets will be displayed in the **Target** menu. Select the desired target server.
- 3 Click **Browse** to configure the **Target folder** field. The datastores available to the selected target server will be displayed.

Note For Hyper-V conversions, the shares available to the target server will be displayed. The credentials for the selected share must match the credentials used when adding the Hyper-V server. Full Control over the share is needed for a successful conversion.

Note When Using the Virtual Appliance for VMware as a target, the Use RDM option will be disabled.

- 4 Select a datastore, and click **OK**.
- 5 In the **VM name** field, enter the desired name.

Note The target VM name can contain upper and lower case letters from the latin alphabet (a-z, A-Z), numbers from 0-9, and the characters "-" and "_".

Caution To avoid errors, please ensure that the VM name is unique within your environment.

- 6 Select **Single** as the Conversion Type.
- 7 In the **Transfer mode** field, select Block or File.
 - **Block:** Block cloning uses an Application Programming Interface (API) from the source OS that allows you to skip unused sectors. This is the default transfer mode, yielding an exact binary copy of a source volume.

- **File:** File cloning of a source occurs on the file system level. The target is mounted to the source and a full file synchronization occurs-directory structure from the source and all file content are updated to the target. File cloning is ideal for capturing large source volumes to a target with limited storage capacity. To ensure consistency during hot cloning, use the file method with MS VSS.

Step 4: Select Source Server

- 1 In the **Network Browser** pane, select the server to convert. Right-click the server, and select **Set as source**.
- 2 In the **Source Drives** section, select the volumes to convert. Configure **Resize** and **Target Folder** values as needed.

Volume mapping type:
Create one virtual disk for each volume

Source Drives:

<input checked="" type="checkbox"/>	Volume	File syst	Size, G	Free, G	Resize	Folder
<input checked="" type="checkbox"/>	C: - Windows 2003	NTFS	7.99	1.97	7.99	<Target folder>

VM type:
VMware® ESX Server (ESX 3.x and ESX 4.x)

Target:
Network shared folder (Example: \\server\share)

VM name:
172.20.15.204

Target folder:

Browse...

Conversion type:
Single

Use profile for conversion:
(none)

Apply


Transfer mode:
Block-Based


Step 5: Advanced Task Properties

You may access the Advanced Task Properties by clicking **Advanced** on the **Task Properties** pane. The **Advanced Task Properties** dialog contains many of the same options as the Task Properties tab.

For more information, see “[Advanced Properties](#)” on page 95.

Step 6: Schedule and Save

- 1 Click the **Scheduler** tab to set a schedule for this task.
- 2 Once scheduled, click the Save icon  to save the task.

- 3 The task will run at the scheduled time. To execute the task manually, click the Start  icon.

Additional Task Procedures

The [Conversion Tutorial](#) section described procedures for a standard P2V conversion. While many of the steps will not change for the other conversion types, some clearly will. The procedures for each conversion type are documented below.

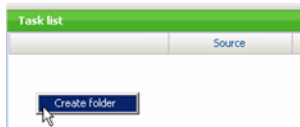
- [Configuring a Conversion with RCC](#)
- [Configuring a Conversion with Synchronized Cutover](#)
- [Configuring a Conversion with Different Destination Cutover](#)

Configuring a Conversion with RCC

The RCC P2V configuration process is essentially the same as the standard P2V process. In order to use RCC, you must have installed the vConverter PXE Service and VistaPE ISO image. For more information, please see the *vConverter Installation and Setup Guide*.

Step 1: Create a Task Folder

- 1 In the Task List pane of the vConverter interface, right-click and select **Create Folder**.



- 2 Right-click the folder, and click **Rename folder**. Enter a descriptive name.

Step 2: Create P2V/V2V Task

- 1 Right-click the task folder, and select **Create P2V/V2V** task.
The **Task Properties** pane is enabled.

Step 3: Select Target Server

- 1 In the **Task Properties** pane, select the appropriate type of VM from the **VM type** field.

The value selected here is determined by the target server to which you are converting. In the example below, we are creating a VM on a VMware ESX Server.



The screenshot shows two dropdown menus. The first is labeled 'VM type:' and has 'VMware® ESX Server (ESX 3.x and ESX 4.x)' selected. The second is labeled 'Target:' and has 'VC-ESX3-LAB09' selected.

- 2 When the **VM type** field is selected, suitable targets will be displayed in the **Target** menu. Select the desired target server.
- 3 Click **Browse** to configure the **Target folder** field. The datastores available to the selected target server will be displayed.

Note For Hyper-V conversions, the shares available to the target server will be displayed. The credentials for the selected share must match the credentials used when adding the Hyper-V server. Full Control over the share is needed for a successful conversion.

Note When Using the Virtual Appliance for VMware as a target, the Use RDM option will be disabled.

- 4 Select a datastore, and click **OK**.
- 5 In the **VM name** field, enter the desired name.

Caution To avoid errors, ensure that the VM name is unique within your environment.

- 6 In the **Transfer mode** field, select Block or File.
 - **Block:** Block cloning uses an Application Programming Interface (API) from the source OS that allows you to skip unused sectors. This is the default transfer mode, yielding an exact binary copy of a source volume. This mode requires that the source and target disks to be the same size. After conversion, you can resize down the target volume.
 - **File:** File cloning of a source occurs on the file system level. The target is mounted to the source and a full file synchronization occurs-directory structure from the source and all file content are updated to the target. File cloning is ideal for capturing large source volumes to a target with limited storage capacity. To ensure consistency during hot cloning, use the file method with MS VSS.

Step 4: Select Source Server

In the Network Browser pane, select the server to convert. Right-click the server, and select **Set as source**.

- 7 In the **Source Drives** section, select the volumes to convert. Configure **Resize** and **Target Folder** values as needed.

Volume mapping type:
Create one virtual disk for each volume

Source Drives:

<input checked="" type="checkbox"/>	Volume	File syst	Size, G	Free, G	Resize	Folder
<input checked="" type="checkbox"/>	C: - Windows 2003	NTFS	7.99	1.97	7.99	<Target folder> ...

VM type:
VMware® ESX Server (ESX 3.x and ESX 4.x)

Target:
Network shared folder (Example: \\server\share)

VM name:
172.20.15.204

Target folder:

Browse...

Conversion type:
Single


Use profile for conversion:
(none)

Apply

Note VistaPE will assign the volume letter “X” to it’s own RAM drive volume. If VistaPE is used to convert a physical volume with the same volume label, the PE environment will become unavailable to vConverter. Please ensure that source systems do not use the volume letter “X” when converting with the VistaPE environment.

- 8 In the **Conversion type** field, select **Remote Cold Cloning**.

Step 5: Schedule and Save

- 1 Click the **Scheduler** tab to set a schedule for this task.
- 2 Once scheduled, click the Save icon  to save the task.

The task will run at the scheduled time. To execute the task manually, click the

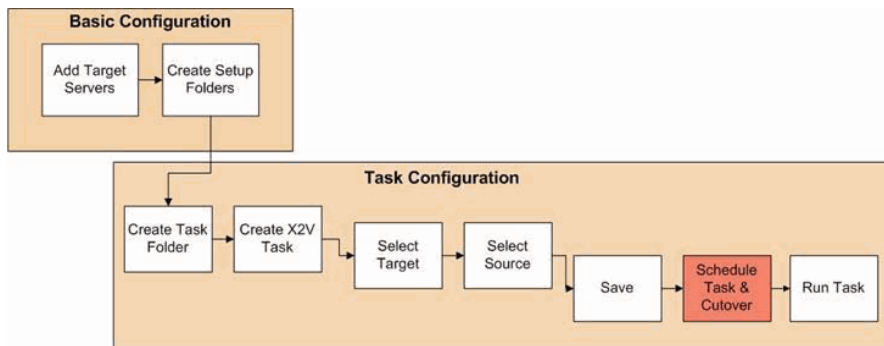
Start  icon.

Configuring a Conversion with Synchronized Cutover

The process of configuring a Synchronized Cutover conversion is very similar to configuring a basic P2V conversion. Two key differences are:

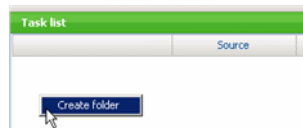
- Conversion type must be set to Synchronized Cutover
- A cutover time must be scheduled.

The tasks represented by the red boxes are unique to Synchronized Cutover.



Step 1: Create a Task Folder

- 1 In the **Task List** pane of the vConverter interface, right-click and select **Create Folder**.



- 2 Right-click the folder, and click **Rename folder**. Enter a descriptive name.

Step 2: Create P2V/V2V Task

- 1 Right-click the task folder, and select **Create P2V/V2V** task.

The **Task Properties** pane is enabled.

Step 3: Select Target Server

- 1 In the **Task Properties** pane, select the appropriate type of VM from the **VM type** field.

The value selected here is determined by the target server to which you are converting. In the example below, we are creating a VM on a VMware ESX Server.



The screenshot shows two dropdown menus. The first is labeled 'VM type:' and has 'VMware@ ESX Server (ESX 3.x and ESX 4.x)' selected. The second is labeled 'Target:' and has 'VC-ESX3-LAB09' selected.

- 2 When the **VM type** field is selected, suitable targets will be displayed in the **Target** menu. Select the desired target server.
- 3 Click **Browse** to configure the **Target folder** field. The datastores available to the selected target server will be displayed.

Note For Hyper-V conversions, the shares available to the target server will be displayed. The credentials for the selected share must match the credentials used when adding the Hyper-V server. Full Control over the share is needed for a successful conversion.

Note When Using the Virtual Appliance for VMware as a target, the Use RDM option will be disabled.

- 4 Select a datastore, and click **OK**.
- 5 In the **VM name** field, enter the desired name.

Caution To avoid errors, please ensure that the VM name is unique within your environment.

- 6 Select **Synchronized Cutover** as the Conversion Type.
- 7 In the **Transfer mode** field, select Block or File.

- **Block:** Block cloning uses an Application Programming Interface (API) from the source OS that allows you to skip unused sectors. This is the default transfer mode, yielding an exact binary copy of a source volume. This mode requires that the source and target disks to be the same size. After conversion, you can resize down the target volume.
- **File:** File cloning of a source occurs on the file system level. The target is mounted to the source and a full file synchronization occurs-directory structure from the source and all file content are updated to the target. File cloning is ideal for capturing large source volumes to a target with limited storage capacity. To ensure consistency during hot cloning, use the file method with MS VSS.

Step 4: Select Source Server

- 1 In the **Network Browser** pane, select the server to convert. Right-click the server, and select **Set as source**.
- 2 In the **Source Drives** section, select the volumes to convert.

Volume mapping type:
Create one virtual disk for each volume

Source Drives:

<input checked="" type="checkbox"/>	Volume	File syst	Size, G	Free, G	Resize	Folder
<input checked="" type="checkbox"/>	C: - Windows 2003	NTFS	7.99	1.97	7.99	<Target folder> ...

VM type:
VMware® ESX Server (ESX 3.x and ESX 4.x)

Target:
Network shared folder (Example: \\server\share)

VM name:
172.20.15.204

Target folder:
Browse...


Conversion type:
Single

Use profile for conversion:
(none) Apply

Step 5: Schedule and Save

- 1 Click the **Scheduler** tab to set a schedule for this task.
 - Select a starting date and time.
 - Select a synchronization interval.
 - Select a Cutover time.

Note The target VM will not be in a consistent state until this final cutover is performed.

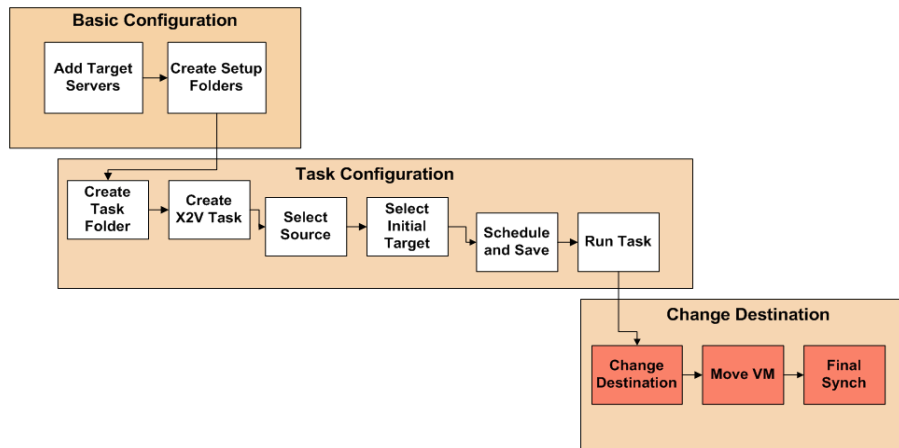
- 2 Once scheduled, click the Save icon  to save the task.
- 3 The task will run at the scheduled time.

Configuring a Conversion with Different Destination Cutover

The process of configuring a Different Destinations Cutover conversion is very similar to configuring a basic P2V conversion. Two key differences are:

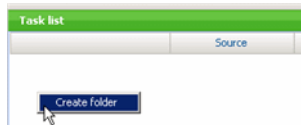
- After the initial conversion(s), the target VM is moved to a different location.
- Conversion activity is managed using the Current Activity field

The tasks represented by the red boxes are unique to Different Destinations Cutover.



Step 1: Create a Task Folder

- 1 In the **Task List** pane of the vConverter interface, right-click and select **Create Folder**.



- 2 Right-click the folder, and click **Rename folder**. Enter a descriptive name.

Step 2: Create P2V/V2V Task

- 1 Right-click the task folder, and select **Create P2V/V2V** task.

The **Task Properties** pane is enabled.

Note At this point, the DDC VM is created.

Step 3: Select Source Server

- 1 In the **Network Browser** pane, select the server to convert. Right-click the server, and select **Set as source**.
- 2 In the **Source Drives** section, select the volumes to convert.

Volume mapping type:
Create one virtual disk for each volume

Source Drives:

<input checked="" type="checkbox"/>	Volume	File syst	Size, G	Free, G	Resize	Folder
<input checked="" type="checkbox"/>	C: - Windows 2003	NTFS	7.99	1.97	7.99	<Target folder>

VM type:
VMware® ESX Server (ESX 3.x and ESX 4.x)

Target:
Network shared folder (Example: \\server\share)

VM name:
172.20.15.204

Conversion type:
Single

Target folder:
Browse...

Use profile for conversion:
(none) Apply

Step 4: Select Target Server - Initial Conversion

- 1 In the **Task Properties** pane, select the appropriate type of VM from the **VM type** field.

The value selected here is determined by the target server to which you are converting. In the example below, we are creating a VM on a VMware ESX Server.

VM type:
VMware® ESX Server (ESX 3.x and ESX 4.x)

Target:
VC-ESX3-LAB09

- 2 When the **VM type** field is selected, suitable targets will be displayed in the **Target** menu. Select the desired target server.
- 3 Click **Browse** to configure the **Target folder** field. The datastores available to the selected target server will be displayed.
- 4 Select a datastore, and click **OK**.

5 In the **VM name** field, enter the desired name.

Caution To avoid errors, please ensure that the VM name is unique within your environment

6 Select **Different Destinations Cutover** as the Conversion Type.

7 Set the **Current Activity** field to **Initial Conversion - active**.


8 In the **Transfer mode** field, select Block or File.

- **Block:** Block cloning uses an Application Programming Interface (API) from the source OS that allows you to skip unused sectors. This is the default transfer mode, yielding an exact binary copy of a source volume. This mode requires that the source and target disks to be the same size.
- **File:** File cloning of a source occurs on the file system level. The target is mounted to the source and a full file synchronization occurs-directory structure from the source and all file content are updated to the target. File cloning is ideal for capturing large source volumes to a target with limited storage capacity. To ensure consistency during hot cloning, use the file method with MS VSS.

Step 5: Schedule and Save

1 Click the **Scheduler** tab to set a schedule for this task.

- Select a starting date and time.
- Select a synchronization interval.
- Select an end time.

2 Once scheduled, click the Save icon  to save the task.

The initial conversions will begin at the scheduled time.



Step 6: Moving the Target VM

There are multiple methods for moving a VM from one host to another. All of these exist outside the scope of vConverter, and as such are not discussed in this document.

Note Using any method appropriate, move the VM to its final destination. After the VM is moved, anew VM will be created with a slightly different name (for example, "Windows_XP" will become "Windows_XP(1)").

Step 7: Final Synchronization

After the VM has been moved, you will be able to edit the task.

- 1 In the vConverter **Task Pane**, select the P2V task. Click the Edit icon .
- 2 Change the **Current Activity** field to **Final Synchronization- Active**.
- 3 In the **Target** field, select the new target server.
- 4 Click **Browse** to configure the **Target folder** field. The datastores available to the selected target server will be displayed.
 - Note** For Hyper-V conversions, the shares available to the target server will be displayed. The credentials for the selected share must match the credentials used when adding the Hyper-V server. Full Control over the share is needed for a successful conversion.
 - Note** When Using the Virtual Appliance for VMware as a target, the **Use RDM** option will be disabled.
- 5 Click the Save icon .

Continuous Protection

This chapter guides you through the process of performing Continuous Protection conversions with vConverter.

This chapter contains the following sections:

Continuous Protection Overview	115
Licensing.....	116
Configuring Continuous Protection	118

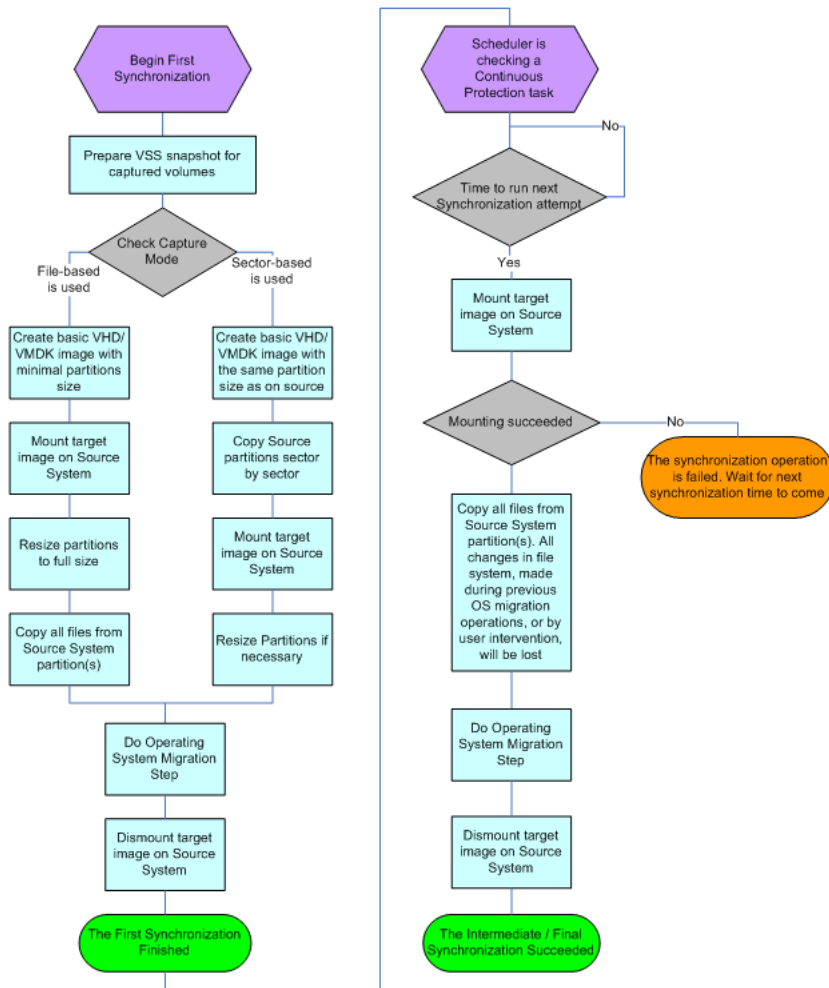
Continuous Protection Overview

You can protect datacenter workloads by addressing disaster recovery (DR) through virtualization. Taking a P2V approach, vConverter preserves a virtual backup copy of a physical machine. When you select Continuous Protection as the conversion type, incremental replication is used. During this process, network usage is minimized because only changes to source data files are transferred to the target. You define the intervals at which these transfers occur.

Unlike Synchronized Cutover, Continuous Protection VMs are bootable between conversion passes. If your production source becomes disabled or corrupted, you can revert to the VM target and boot to an image consistent with the state of the source system at the last synchronization. If the target VM is powered on between synchronizations - any changes made to the VM will be lost on the next synchronization. The exception to this is newly added files which are missing on the source - these files will remain in the target image.

Note Synchronizations in Continuous Protection Mode requires VSS - this mode is unavailable for converting Windows 2000 systems. Continuous Protection is only available for Windows conversions.

The diagram below explains in more detail what happens in Continuous Protection Mode.



Licensing

Continuous protection (Windows only) features are available with a valid license (either a Trial or Perpetual license).

There are no features available without a license (either Trial or Perpetual).

License Types Supported in vConverter 5.1.1

Support is available for the following:

- Trial licenses with 30-day demo period.
- Perpetual license (QLL type Ongoing) with no expiration date.

No support is available for installations with:

- Trial license with an expiration date (no demo period).
- Term license (QLL type Ongoing) with a stated expiration date.

Overwriting an Existing License

An instance of vConverter can have only one license installed at a time.

Trial licenses can only be installed on an unlicensed instance of vConverter, or on a vConverter instance that has a trial license (expired or not). Installing a new trial license over a previously installed license will overwrite all settings, in particular, expiration date and number of systems.

Perpetual licenses may be installed at any time: installing over a previously installed license (both trial and perpetual) overwrites a number of systems.

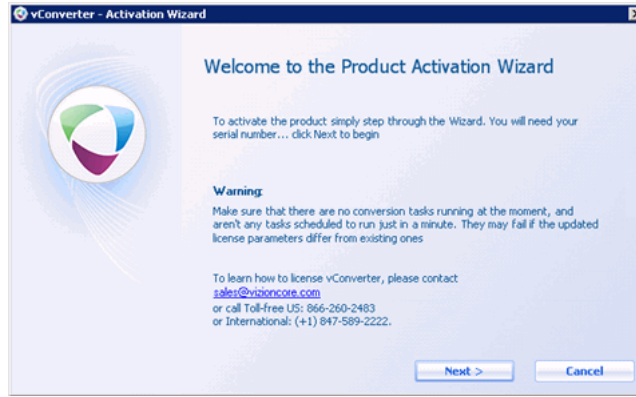
Embedded Trial License


When vConverter 5.1.1 is downloaded, it will have an embedded trial license with 30-day demo period.

To activate a Continuous Protection license:

- 1 From the vConverter interface, click **Help**, then **License Activation**.

The **vConverter Activation Wizard** appears.



- 2 Click **Next**.
- 3 Click the Browse icon  and browse to the location of the license file.
- 4 Click **Open**, then click **Next**.
- 5 The **Congratulations** screen appears. Click **Finish**.

Configuring Continuous Protection

The Continuous Protection process is described in the sections that follow. Note that there are multiple optional configurations available. This document is intended only to illustrate the basic functionality.

Basic Configurations

The basic configuration tasks are performed via the vConverter Program Preferences dialogue, available at **Tools > Preferences**.

Step 1: Add Target Servers

- 1 On the **Program Preferences** dialogue, select the tab that corresponds to your target platform. Options are **ESX Servers**, and **Hyper-V Servers**.
- 2 Click **Add** to enable the Server Info section.

- 3 Enter the server information as appropriate.

Note If you will be using a Virtual Appliance as a conversion target, you will need to complete the VA Config dialogue.

- 4 Click **Save and Install** to save your server configuration.

Step 2: Create Setup Folders

To convert a Windows system, vConverter requires access to certain files from the Windows installation. In most cases, you will find these files in one of these locations:

- "%windir%\Driver Cache
- "%windir%\ServicePackFiles

Occasionally, an administrator will have to remove the files from these locations manually or programmatically by running the SFC /PURGECACHE command. If this has happened to a source server, vConverter will display a message stating that "Required files for this server . . . are missing . . .".

When system files required for conversion are not found in the system being converted, those files and service pack source files must be extracted and made available in the setup file location.

Note Only .exe files should be unpacked. There is no need to unpack .cab files

- 1 From the **Program Preferences** dialogue, click the **General** tab.
- 2 In the **Setup Folders** section, click **Add**.
- 3 Under the **Operating System**, **Architecture**, and **SP** column, select the appropriate values.
- 4 In the **Location for OS Setup files** column, insert the *%windir%\Driver Cache* path for a server accessible from the workstation where vConverter is running (e.g., *\\server\c\$\windows\Driver Cache\i386*).

or

Extract the files to a central location, and enter that location.

Task Configuration

Step 1: Create a Task Folder

- 1 In the Task List pane of the vConverter interface, right-click and select **Create Folder**.
- 2 Right-click on the folder, and click **Rename folder**. Enter a descriptive name.

Step 2: Create P2V/V2V Task

- 1 Right-click on the task folder, and select **Create P2V/V2V** task.
The **Task Properties** pane is enabled.

Step 3: Select Target Server

- 1 In the **Task Properties** pane, select the appropriate type of VM from the **VM type** field.

The value selected here is determined by the target server to which you are converting. In the example below, we are creating a VM on a VMware ESX Server.



The screenshot shows two dropdown menus. The first is labeled 'VM type:' and has 'VMware® ESX Server (ESX 3.x and ESX 4.x)' selected. The second is labeled 'Target:' and has 'VC-ESX3-LAB09' selected.

- 2 When the **VM type** field is selected, suitable targets will be displayed in the **Target** menu. Select the desired target server.
- 3 Click **Browse** to configure the **Target folder** field. The datastores available to the selected target server will be displayed.

Note For Hyper-V conversions, the shares available to the target server will be displayed. The credentials for the selected share must match the credentials used when adding the Hyper-V server. Full Control over the share is needed for a successful conversion.

Note When Using the Virtual Appliance for VMware as a target, the Use RDM option will be disabled.

- 4 Select a datastore, and click **OK**.

- 5 In the **VM name** field, enter the desired name.

Note The target VM name can contain upper and lower case letters from the latin alphabet (a-z, A-Z), numbers from 0-9, and the characters "-" and "_".

Caution To avoid errors, please ensure that the VM name is unique within your environment.

- 6 In the **Conversion Type** field, select **Continuous Protection**.

- 7 In the **Transfer mode** field, select Block or File.

- **Block:** Block cloning uses an Application Programming Interface (API) from the source OS that allows you to skip unused sectors. This is the default transfer mode, yielding an exact binary copy of a source volume. This mode requires that the source and target disks be the same size. After conversion, you can resize the target volume up or down.
- **File:** File cloning of a source occurs on the file system level. The target is mounted to the source and a full file synchronization occurs-directory structure from the source and all file content are updated to the target. File cloning is ideal for capturing large source volumes to a target with limited storage capacity. To ensure consistency during hot cloning, use the file method with MS VSS.

Step 4: Select Source Server

- 1 In the **Network Browser** pane, select the server to convert. Right-click the server, and select **Set as source**.
- 2 In the **Source Drives** section, select the volumes to convert.

The screenshot shows a configuration window for volume mapping and conversion. It includes sections for Source Drives, VM type, VM name, Conversion type, Target, Target folder, and Use profile for conversion.

Volume mapping type: Create one virtual disk for each volume

Source Drives:

<input checked="" type="checkbox"/>	Volume	File syst	Size, G	Free, G	Resize	Folder
<input checked="" type="checkbox"/>	C: - Windows 2003	NTFS	7.99	1.97	7.99	<Target folder>

VM type: VMware® ESX Server (ESX 3.x and ESX 4.x)

VM name: 172.20.15.204

Conversion type: Single



Target: Network shared folder (Example: \\server\share)

Target folder: [Empty field] [Browse...](#)

Use profile for conversion: (none) [Apply](#)

Step 5: Schedule and Save

- 1 Click the **Scheduler** tab to set a schedule for this task.

- Select a starting date and time.
 - Select a synchronization interval.
 - Select an End by time. To run tasks indefinitely, leave the End by checkbox unchecked.
- 2 Once scheduled, click the Save icon  to save the task.
 - 3 The task will run at the scheduled time. To execute the task manually, click the Start  icon.

Linux P2V Conversions

This chapter provides information on creating P2V conversions for Linux source systems. A conversion tutorial is provided as an example.

This chapter contains the following sections:

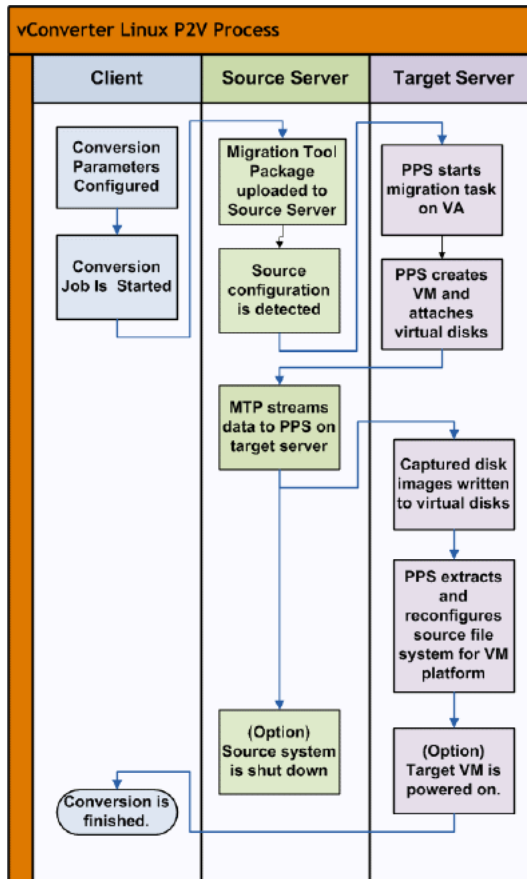
Linux Conversion Overview	124
Important Information About Linux Conversions	125
Configurations for Linux Conversions	127
Creating a Conversion	128

Linux Conversion Overview

The Linux P2V process follows the basic workflow described below.

The main components of the Linux conversion process are the Migration Tool Package (MTP) and the Post Processing Service (PPS). The MTP is uploaded to the Linux source server, where it prepares and sends the data. The PPS is part of the vConverter Virtual Appliance components installed on the VMware vMA. The PPS receives data from the MTP and writes VMDKs for the created VM.

The vConverter client connects to the source server and uploads the Migration Tool Package. The MTP collects source system configuration information and displays this information in the vConverter console.



Once the job has been configured and started, the vConverter client starts a new migration session and invokes the Post Processing Service that is running within the vConverter VA (installed on the VMware vMA). The PPS creates virtual disks and makes some additional preparations to receive the data from the source MTP. When all preparations on the PPS site have been done, the vConverter client invokes MTP to start streaming the source data. The MTP reads block by block from the selected hard disks and uploads the data to target PPS.

Once the data transfer has completed, the vConverter client will invoke PPS to migrate hardware specific configurations to settings compatible with the target platform. As a result, PPS gets a virtual disk image (or set of images) that can be used to register a new VM instance within VMware ESX Server.

When a user configures a task and specifies the source server, the Conversion Service receives a command from the GUI Application to collect some needed system information. This is done by uploading into the source server some special daemon programs and executing them. The programs are called Migration Tool Package (MTP).

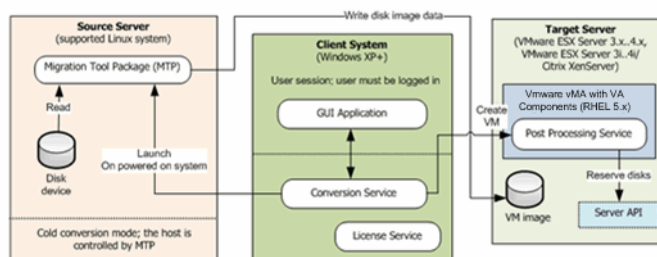
Once the information is collected, the GUI is updated, so user can fill in some specific system settings, e.g. select the volumes to be converted, choose whether or not X Window is to be enabled on the target. Finally, user saves the task.

When the task is started, the Conversion Service enables the Post Processing Service (PPS). This service is running within the VMware vMA. PPS creates the target VM, reserves necessary virtual disks via an available server API, and prepares the target to receive the source machine image.

After that, MTP starts sending data from the source machine to the target. First, the source system is rebooted in the Cold mode. Then, the disk capturing process is invoked: MTP reads partitions sector-by-sector and sends the data to PPS. Once capturing is completed, MTP reboots the source system to restore it's original state.

The last step is making hardware-specific configuration on the target VM, and registering the new VM on the target VM repository.

An architectural representation of the Linux P2V process is shown below:



Important Information About Linux Conversions

Due to the differences between Windows and Linux, and to the variety of Linux distributions and implementations, there are some important restrictions and limitations that apply to Linux P2V conversions.

- **Volume Resize:** Volume resize operations are not supported for Linux conversions.

- **Cold Mode Conversions:** Linux systems may be converted in Cold mode only. The source server is captured in the Cold mode. MTP component runs there remotely, replaces the boot loader and then reboots the host. After rebooting, there are no processes that could change the source disk data, and those data are then passed to the target one-for-one. Therefore, the image is 100% consistent.
- **Block Conversions:** Due to the variety of file systems supported by the various Linux distributions, only block conversions are supported.
- **Converted Volumes:** vConverter runs P2V Linux conversions in the block mode, which is why the minimal unit to be migrated is a disk partition. vConverter creates one target virtual disk per each source physical disk. The same rule applies to the disk partitions and their layout. If you have not marked some volumes for conversion, you will still see them on the target, however they will be empty (and take minimum memory space supported by the given virtualization platform). The target virtual disks may be re-ordered. This is done to keep the target system properly bootable, as the virtualization platforms have no facilities to denote the boot preference.

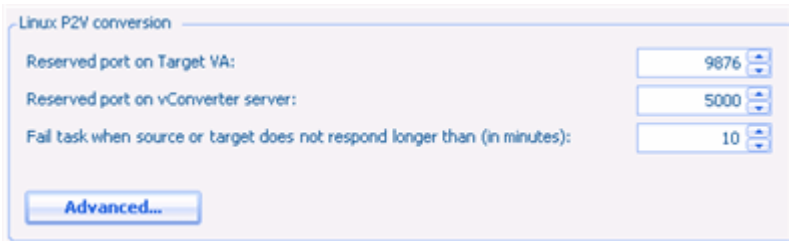
Note The source hosts may have various disk devices (e.g. IDE, SATA, SCSI), while the virtualization platforms may only support their restricted modifications: SCSI in ESX. For this reason, on the target system, you may need to re-configure some of your programs - those that are designed to be used by specific disk devices, for example disk state monitors.

- **Boot Configurations:** vConverter supports Linux hosts which are booted by GRUB boot loader only; the legacy LILO boot loader is not supported.
- **MAC Address:** After conversion, a Network Interface Card (NIC) is allocated to the target VM. This card's MAC address is different from the source one. Thus, some specific software programs that use MAC addresses of NIC devices may not to work properly.
- **X Windows:** Since there potentially may be some problems with graphical devices migration, vConverter switches off the resulting VM GUI (X Window). As GUI is not a vital component of Unix-like systems (which include Linux), this is the safest conversion option. Though X Window is switched off, it is still migrated together with all other disk data, and you can enable it manually by changing the runlevel value. Also, you can specify vConverter not to disable X Windows (in vConverter Client, on the Task Properties pane, select **Advanced > VM > X Window**). Before using this option or enabling X Window manually, please ensure the source and target graphical devices are compatible. Take into account the following information:

- ESX Servers simulates a video card device. To enable X Server you need to ensure there is an appropriate video driver.

Configurations for Linux Conversions

There are several conversion options specific to Linux conversions. These options can be configured in the Conversion tab of the vConverter Program Preferences (**Tools>Preferences**). The Linux P2V Conversion section of this tab is shown below:

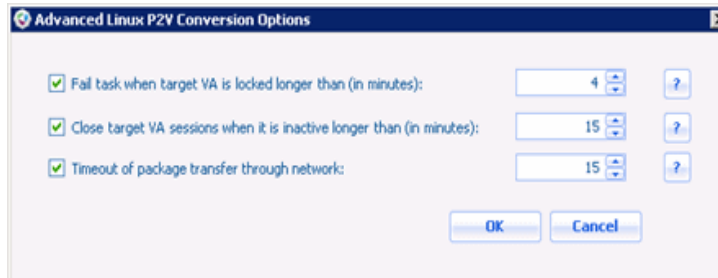


Reserved port on Target VA	The vConverter Virtual Appliance components include the Post Processing Service (PPS). The PPS receives the data from the Linux Source, and sends response on these comments. This value configures the port on which the PPS will listen for traffic.
Reserved port on vConverter server	This is the port on which the vConverter conversion service monitors traffic from the MTP and PPS modules. See Linux Conversion Overview for more information.
Fail task when source or target does not respond longer than (in minutes)	This is the communication timeout value. If the target or source does not respond to communication within this time frame, the conversion task will fail.
Advanced...	This opens the Advanced Linux P2V Conversion Options dialogue.

Advanced Linux Conversion Options

The Advanced Linux P2V Conversion Options dialogue is shown below.

Note This dialogue differs from the Advanced Properties dialogue found on the Task Properties pane. For information on Advanced Task Properties, see [“Step 5: Advanced Task Properties”](#) on page 132.



Fail task when target VA is locked longer than	Conversion will fail if the target VA is locked by another instance of vConverter for longer than the specified timeout value.
Fail task when source or target does not respond longer than	If vConverter does not ping the VA daemon for more than the specified timeout value, the VA daemon will fail the conversion and close the connection.
Fail task when source or target does not respond longer than	Conversion will fail if vConverter cannot send or receive protocol command over this period of time.

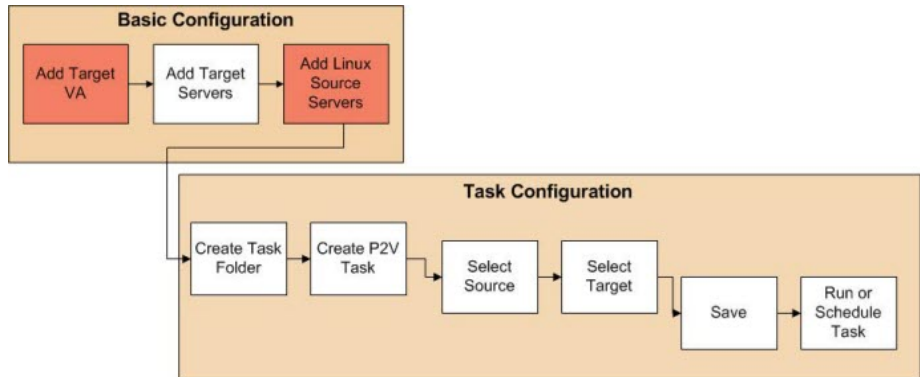
Creating a Conversion

The Linux P2V process differs from the standard P2V process in some key areas:

- Linux sources are not automatically discovered by vConverter. You will need to add Linux sources manually.
- Linux P2V conversions can only be performed using VMware vMA with vConverter Virtual Appliance components as a target.

- Setup Folders are not required for Linux P2V.

The tasks represented by the red boxes are unique to Linux P2V.



Note In the interest of clarity, the entire process is described below. Some steps, such as adding target servers, may not be necessary if you have previously performed basic conversions.

The basic configuration tasks are performed via the vConverter Program Preferences dialogue, available at **Tools > Preferences**.

Step 1: Add Target VA

You must have imported at least one VMware vMA with vConverter Virtual Appliance components configured and running on the target server before you can use it for Linux P2V conversions. Please refer to VMware documentation for vMA installation documentation.

Step 2: Add Target Servers

- 1 On the **Program Preferences** dialogue, select the tab that corresponds to your target platform. The option is **ESX Servers**.
- 2 Click **Add** to enable the **Server Info** section.
- 3 Enter the server information as appropriate.
- 4 Select **Use virtual appliance to transfer data**.
- 5 Click **VA Config**.
- 6 Complete the **VA Configuration** dialogue and click **OK**.

- 7 Click **Save and Install**.

Step 3: Add Linux Source Servers

Linux servers are not automatically discovered and must be added manually prior to configuring a conversion task.

- 1 In the **Network Browser** pane, right-click the **Linux Hosts** node.
- 2 Click **Add Linux source**.



- 3 Complete the **Add a new Linux source system** dialogue.

A screenshot of the 'Add a new Linux source system' dialog box. The 'General' tab is active, showing fields for 'IP Address or host name', 'Root Login' (set to 'root'), 'Root password', 'Repeat password', and 'SSH Port' (set to 22). The 'Secure Connectivity' section has an unchecked checkbox for 'Use alternate login' and fields for 'Alternate login', 'Alternate password', and 'Repeat password'. 'OK' and 'Cancel' buttons are at the bottom.

Quest recommends using the **Secure Connectivity** option. vConverter will connect with this alternate login, then SU to gain appropriate authority.

- 4 Click **OK**.

Task Configuration

Step 1: Create a Task Folder

- 1 In the **Task List** pane of the vConverter interface, right-click and select **Create Folder**.



- 2 Right-click the folder, and click **Rename folder**. Enter a descriptive name.

Step 2: Create P2V/V2V Task

- 1 Right-click the task folder, and select **Create P2V/V2V task**.

The **Task Properties** pane is enabled.

Step 3: Add Source

- 1 In the **Linux Hosts** node of the **Network Browser** pane, right-click the Linux server you wish to convert.
- 2 Select **Set as source**.
- 3 In the **Source Drives** section, select the volumes to convert.

Source Drives:						
<input type="checkbox"/>	Volume	Mountpoint	File system	Size, GB	Free, GB	Folder
<input checked="" type="checkbox"/>	/dev/sda1 - Red Hat Ente	/boot	EXT3	0.10	0.00	<Target folder>
<input checked="" type="checkbox"/>	/dev/sda2			9.90	0.00	<Target folder>
<input type="checkbox"/>	LogVol00	/dev/VolGroup0	EXT3	7.94	0.00	<Target folder>
<input type="checkbox"/>	LogVol01	/dev/VolGroup0		1.94	0.00	<Target folder>

Step 4: Select Target

- 1 In the **Task Properties** pane, select the appropriate type of VM from the **VM type** field.

The value selected here is determined by the target server to which you are converting. In the example below, we are creating a VM on a VMware ESX Server.

VM type:	Target:
VMware® ESX Server (ESX 3.x and ESX 4.x) ▼	VC-ESX3-LAB09 ▼

- 2 When the **VM type** field is selected, the Target menu will show the available target VAs matching that VM type. Select the desired VA.

- 3 Click **Browse** to configure the **Target folder** field. The datastores available to the selected target server will be displayed.

Note When using the Virtual Appliance for VMware as a target, the Use RDM option will be disabled.

- 4 Select a datastore, and click **OK**.

- 5 In the **VM name** field, enter the desired name.

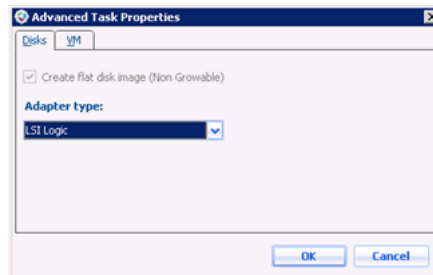
Caution To avoid errors, please ensure that the VM name is unique within your environment.

- 6 The Conversion type defaults to the only option: **Linux Remote Cold Conversion**.

- 7 The **Transfer mode** defaults to the only available option: Block.

Step 5: Advanced Task Properties

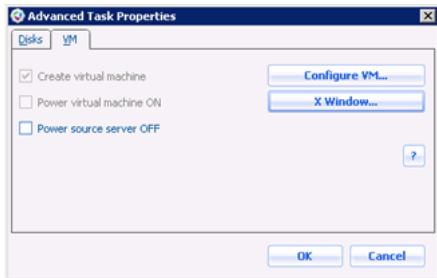
You may access the Advanced Task Properties by clicking **Advanced** on the Task Properties pane. The **Advanced Task Properties** dialogue has two tabs - Disk and VM.





The **Disk** tab contains two options:

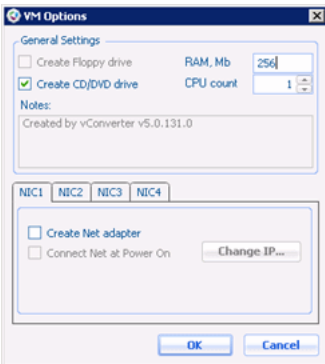
- **Create flat disk image (Non Growable)** - This field is selected and disabled, as this is the only supported option.
- **Adapter type** - The Adapter type menu contains a list of virtual disk adapter types for VMs and captured disks. If a target VM platform supports a particular adapter type, it will be listed in this field.

The VM tab contains several options:



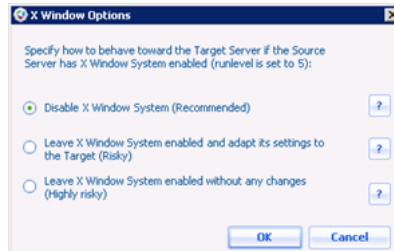
Create Virtual Machine	Instructs vConverter to create a VM descriptor file and registers the VM in the target environment (ESX Server). Otherwise, only a set of disk image files is created, which you must attach to the VM manually.
Power virtual machine ON	Runs the VM after the conversion is complete. Applicable only for ESX Server.
Power source server Off	Instructs source server to shut down after completing a successful conversion.
	Opens the VM Options dialogue.
	Opens the X Windows dialogue.

VM Options Dialogue




Create Floppy Drive	This option is disabled for Linux P2V.
Create CD/DVD Drive	Select this option to create a CD/DVD drive on the target.
RAM, MB	Configure RAM on the target through this field.
Notes (text box)	<p>This field it auto-populated with “Created by vConverter 5.x.”</p> <p>You can alter this and include additional text.</p>
CPU Count	Configure the number of CPUs on the target VM through this field.
NIC1-4 (tabs)	<p>These tabs allow you to create and configure up to four NICs. These fields are available on the tabs:</p> <ul style="list-style-type: none">• Create Net adapter• Connect Net at Power On <p>Clicking the Change IP button accesses the IP Settings dialog, where you can update IP addresses and DNS settings.</p>

X Window Options Dialogue



Disable X Window System	After conversion, vConverter will disable the X Window System on the target server by setting the runlevel to 3. The VM will boot in the console mode.
Leave X Window System enabled and adapt its settings to the Target	vConverter will attempt to adapt X Window System settings to the target hardware. Caution Do not use this option if the video cards on the Source and Target are not compatible.
Leave X Window System enabled without any changes	Use this option only if the Source and Target video cards are the same.

Step 6: Schedule and Save

- 1 Click the **Scheduler** tab to set a schedule for this task.
- 2 Once scheduled, click the Save icon  to save the task.

The task will run at the scheduled time. To execute the task manually, click the Start



icon.

Windows V2P Conversions

This chapter guides you through the process of performing V2P conversions with vConverter.

This chapter contains the following sections:

Windows V2P Overview	137
Preparing the Target System for V2P	139
Creating a V2P Conversion	140

Windows V2P Overview

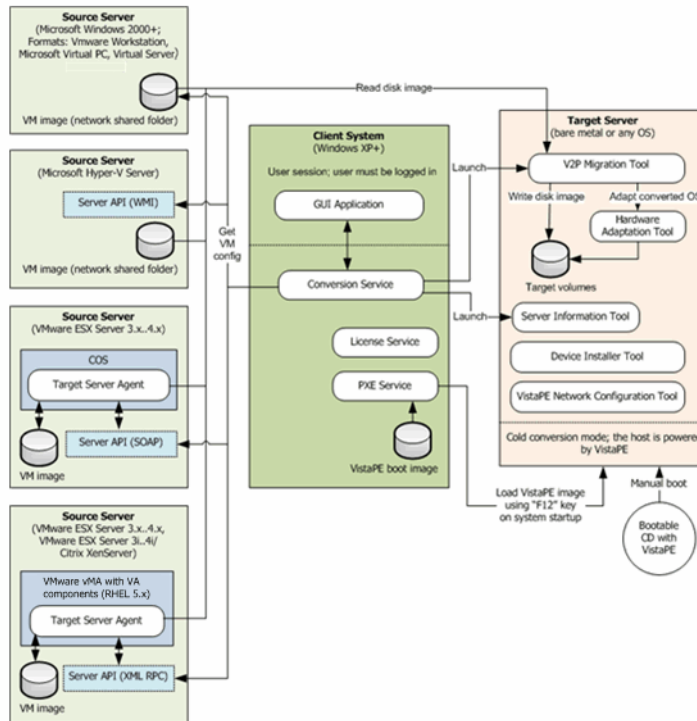
vConverter offers the ability to convert Windows VMs back to a physical target. vConverter uses a VistaPE boot image to boot the physical system, so the target server does not need to have an OS.

Once you configure a task and specify the source VM, vConverter obtains the essential information about it using the Conversion Service. This is done either via a special API provided by the source virtualization platform (for ESX/ESXi, and Hyper-V servers) or by reading the VM configuration directly from .VMX or .VMC files (for VMware Workstation, Microsoft VirtualPC, etc). This information is saved in vConverter together with the task settings, and is used during the conversion process.

To specify the target system in the Task Properties pane, you need to first boot it using the VistaPE boot image. The Server Information Tool is then launched, which enables vConverter to get required disk information from the target.

When V2P conversion is started, the Conversion Service enables the V2P Migration Tool on the target. The tool reads the source VM disk image sector by sector and restores an exact partition layout. After that, it launches the Hardware Application Tool which prepares the restored system for the first run on the new hardware.

An architectural representation of the Windows V2P process is shown below:



Important Notes about Windows V2P

- Each disk image file from the source VM can be restored to separate physical drive only. Restoring multiple disk images into single target device is not supported.
- The V2P conversion overwrites all the data and disk formatting on the target physical device.
- Restoring of any kind of dynamic disks is not supported. The Source disk image must have only basic Windows disks.
- Only the drivers that are the most important for system health are checked and installed by vConverter; these are HAL, storage, LAN drivers, and, optionally,

Video drivers. Other less critical plug-and-play devices such as USB controllers or video cards are detected by the converted OS after conversion.

- When a V2P conversion task finishes, the target system is not powered off automatically. You will need to reboot it manually, either via the Power button or using the VistaPE console window by typing “reboot”.
- Volume resizing is not supported with V2P conversions.
- For V2P conversions when using the virtual appliance, the source VM name can contain upper and lower case letters from the latin alphabet (a-z, A-Z), numbers from 0-9, and the special characters (@ ! # \$ % ^ & * () _ + - ~ [] \ { } | ; ' : " , . / < > ? space).
- For V2P conversions when *not* using the virtual appliance, the source VM name can contain upper and lower case letters from the latin alphabet (a-z, A-Z), numbers from 0-9, and the special characters (@ ! # \$ % ^ & () _ + - ~ [] { } ; ' : " , . / < > ? space).

Preparing the Target System for V2P

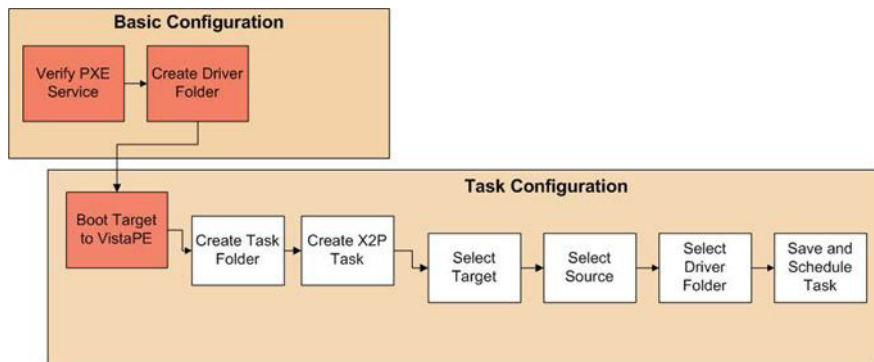
- 1 Make sure you have all necessary drivers that will allow the newly converted system to properly interact with your target hardware.
- 2 Place the drivers in a separate folder on your source system. You may also use a USB mass storage or a network share which is mapped as a drive. All INF files should be located in one folder, with sub-folders for DLL, SYS or other files. Ensure that the INF files have valid references to the necessary files.
Tip If the drivers are zipped or in one self-extracting archive, remember to unpack them.
- 3 Specify this folder in the vConverter GUI, in the task settings (Driver Folder field).
Tip The Driver Folder should contain drivers for the target system only. Do not to mix drivers from different OSs in one Driver Folder. Be sure all necessary files exists in the folder.
- 4 Power the target system on, either by VistaPE boot CD, or using vConverter’s PXE service, running on a Client system. Ensure that Windows Vista has the correct drivers installed for all vital hardware on the target. If it does not, e.g. some SCSI or NIC cards are not detected properly, you can:
 - For NIC drivers, install the drivers manually at runtime using the Device Installer Utility within VistaPE boot image. This is not a persistent change - it is only valid for the booted instance in which you load the drivers. For more

information, see “[Adding Drivers to the vConverter PE Image- Device Installer](#)” on page 146.

- For NIC and SCSI drivers, modify the VistaPE image to permanently add the desired drivers. For more information, see “[Adding Drivers to the vConverter PE Image - Using the WAIK](#)” on page 151.

Creating a V2P Conversion

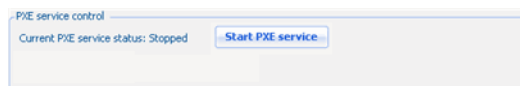
The basic Windows V2P configuration process is described in the flowchart below and in the sections that follow.



Step 1: Start PXE Service

The PXE Service allows vConverter to remotely boot target machines into the VistaPE environment. If you prefer to manually boot the target servers using a boot CD, the service may remain stopped.

- 1 On the **Program Preferences** dialogue, select the **General** tab.
- 2 In the **PXE Service Control** section, view the service status.



- 3 If the service is “Running”, click **OK** to close the dialogue.

or

If the service is “Stopped”, click **Start PXE Service**, then **OK**.

Step 2: Create Driver Folder

To have a successful conversion, you must supply the appropriate hardware drivers for the target platform.

- 1 Compile the appropriate hardware drivers for the target platform.

You may use the Windows startup disk, or collected drivers (in .INF format). Drivers may be compressed in CAB files.

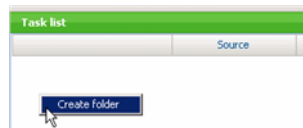
- 2 Place the drivers in a network share accessible to the vConverter machine.

Tip In most cases, it is not necessary to specify Driver Folder. If the Driver Cache was deleted, or you do not have standard hardware on the target, it is necessary to provide drivers. Please see more info on Driver Folder in [Preparing the Target System for V2P](#).

Task Configuration

Step 1: Create a Task Folder

- 1 In the **Task List** pane of the vConverter interface, right-click and select **Create Folder**.



- 2 Right-click the folder, and click **Rename folder**. Enter a descriptive name.

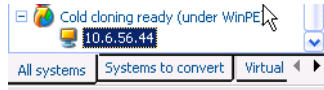
Step 2: Create V2P Task

- 1 Right-click the task folder, and select **Create V2P** task.

The **Task Properties** pane is enabled.

Step 3: Add Target Server

- 1 Boot the target server using the vConverter VistaPE boot environment. This may be remotely via the vConverter PXE service or manually with a CD.
- 2 Once booted, the target server will appear under the **Cold Cloning ready (under WinPE)** node.



- 3 Select the desired target server, and right-click. Select **Add to systems to convert**.

or

Drag the target server to the **Target Server** hot spot.



- 4 The **Target** field will populate with the target server information.

Step 4: Select Source VM

- 1 In the **Network Browser** pane, select the **Virtual Machines** tab.
- 2 In the **Virtual Machines** tab, find the VM you wish to convert. Right-click the VM and select **Set as source**.

or

Drag the VM to the **Source Server** hot spot.

- 3 In the **Source Drives** section, select the volumes to convert.

Source Drives:		
<input checked="" type="checkbox"/>	Volume	Size, GB Target Driv
<input checked="" type="checkbox"/>	vcontrolxplite.vmdk	1.50

Step 5: Select Driver Folder



- 1 In the **Driver Folder** field, enter the path to the directory containing the drivers for the target server.

or

Click **Browse** to navigate to the directory.

Step 6: Schedule and Save

- 1 Click the **Scheduler** tab to set a schedule for this task.

- Select a starting date and time.
 - Select a synchronization interval.
 - Select an End By time.
- 2 Once scheduled, click the Save icon  to save the task.
 - 3 The task will run at the scheduled time. To execute the task manually, click the Start  icon.

Appendix 1: ISO Image Instructions

Using the vConverter VistaPE ISO Image	145
Configuring the vConverter PE Image	146
Adding Drivers to the vConverter PE Image- Device Installer.....	146
Compatible Drivers	153

Using the vConverter VistaPE ISO Image

vConverter's Remote Cold Cloning (RCC) feature automates the cold cloning process by booting the source server using vConverter's boot image. vConverter sends a boot loader and its boot image over the network and loads them on the source system. vConverter uses these to reboot the source at a time that you designate, and the conversion begins. When the system has booted into the VistaPE environment, the original boot loader is restored, so next time the system will boot normally.

When an automated RCC conversion is unavailable for any reason (e.g. replacing boot loader is not possible), one of two manual methods can be applied. You can create a boot CD from the ISO boot image and load the source server, or can you download and install the vConverter PXE service on the vConverter system. You can then boot the source system to the VistaPE boot image remotely by pressing F12 key during reboot. This document describes the process of obtaining, using, and configuring the vConverter PE Image ISO.

Getting Started

Before beginning this process, you will need the following:

- Access to the internet.
- A valid vConverter license.
- A supported hypervisor on the target host. Supported versions are listed in the *vConverter User Manual*.

The installation and configuration of the vConverter PE Image ISO follows the sequence below. Click on each step to jump to the instructions for that step.

- [Obtaining the vConverter PE Image ISO](#)
- [Booting to the vConverter PE Image](#)
- [Configuring the vConverter PE Image](#)
- [Compatible Drivers](#)

Obtaining the vConverter PE Image ISO

The vConverter PE Image ISO cannot be freely downloaded. To download the PE Image ISO, please contact Quest Server Virtualization support at:

support@vizioncore.com

Booting to the vConverter PE Image

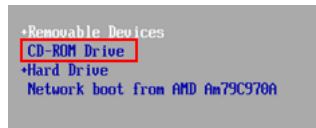
The vConverter PE Image ISO image must be burned to a CD/DVD prior to use. There are many software utilities available, both freely and commercially, for burning an ISO image. The instructions below assume that you have created a bootable CD from the vConverter PE ISO image.

Step 1: Set Boot Order

- 1 Ensure that your source machine is set to boot from CD-ROM.

The commands for setting boot order differ depending on BIOS version. For the most common versions, **F2** is the command to enter Setup.

- 2 Ensure that CD-ROM Drive is set before Hard Drive in the boot order.



- 3 Exit Setup to reboot the server.

Configuring the vConverter PE Image

Adding Drivers to the vConverter PE Image- Device Installer

Occasionally the vConverter boot environment will not contain the appropriate drivers for the source server to boot effectively. The vConverter boot environment includes an easy to use Device Installer through which you can

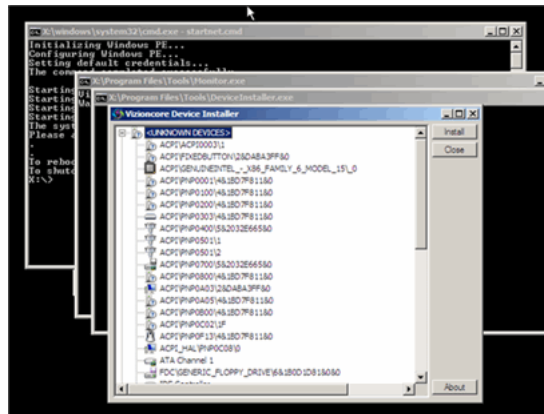
install needed drivers from a CD or floppy, or directly from the host's hard drive.

Step 1: Device Installer

- 1 Connect directly to the host to view the boot environment.
- 2 Click **Start**, then **Device Installer**.

Step 2: Network Adapters


- 3** In either the **Network Adapters** or **Unknown Devices** group, select your network adapter. Click **Install**.



The **Device Installation** dialog appears.


- Click **Ok**.
- Specify the path to the driver. Click **Close**.

Step 3: Network Configurator

- 6 Click the whirl icon , then **PE Network Configurator**.

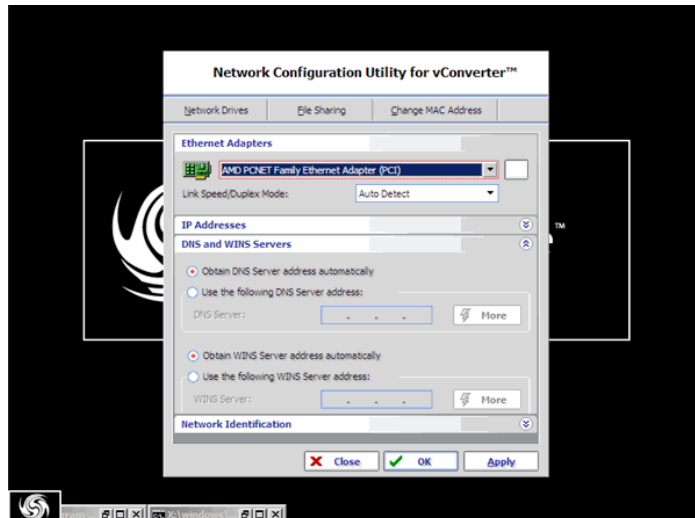
Note If this process fails, then you are using an incompatible driver. For a list of compatible drivers, see [Compatible Drivers](#).

Configuring Networking for the vConverter PE Image

The **Network Configuration Utility** is displayed upon booting the vConverter PE image. The utility can also be started from the Whirl .

Step 1: Booting to the vConverter PE Image

The **Network Configuration Utility** is shown below.

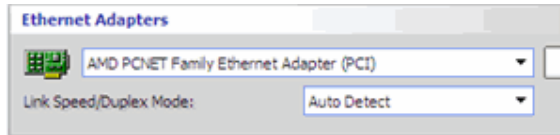


The **Network Configuration Utility** contains the following sections:

- Ethernet Adapters
- IP Addresses
- DNS and WINS Servers
- Network Identification

Step 2: Ethernet Adapters

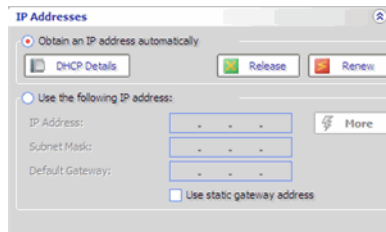
The **Ethernet Adapters** section is shown below:



- 1 In the network adapters field, select the appropriate NIC.
- 2 In the **Link Speed/Duplex Mode** field, select the appropriate mode.

Step 3: IP Addresses

The **IP Addresses** section is shown below:



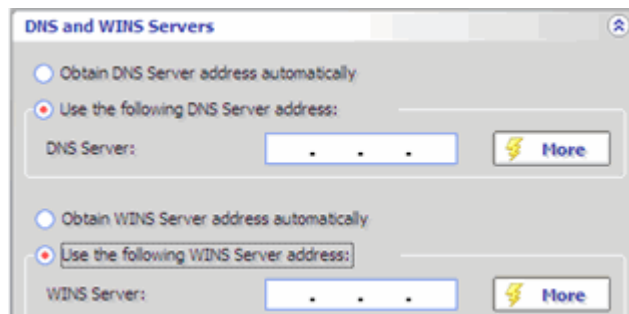
- 1 If using DHCP, select **Obtain an IP address automatically**. To configure a static IP, select **Use the following IP address**.
- 2 If using DHCP, select **DHCP Details** to view the current configuration.



- 3 If using a static IP, populate the fields as appropriate for your network.

Step 4: DNS and WINS Servers

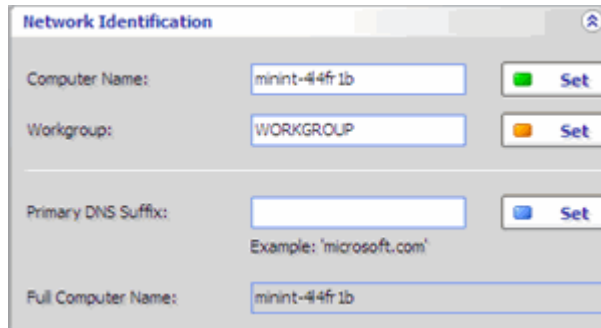
The **DNS and WINS Servers** section is shown below:



- 1 Select either **Obtain DNS Server Address automatically** or **Use the following DNS Server address**.
- Note** If you are using a static IP configuration in Step 2, **Obtain DNS Server Address automatically** will not be an available selection.
- 2 Select either **Obtain WINS Server Address automatically** or **Use the following WINS Server address**.
- Note** If you are using a static IP configuration in Step 2, **Obtain WINS Server Address automatically** will not be an available selection.

Step 5: Network Identification

The **Network Identification** section is shown below:



The screenshot shows a 'Network Identification' dialog box with the following fields and values:

- Computer Name: minint-44fr1b
- Workgroup: WORKGROUP
- Primary DNS Suffix: (empty)
- Full Computer Name: minint-44fr1b

Each field has a 'Set' button next to it. Below the Primary DNS Suffix field, there is an example: 'microsoft.com'.

- 1 Populate the **Computer Name**, **Workgroup**, and **Primary DNS Suffix** fields as appropriate. Click **Set** next to each field to save the configuration.

Step 6: Save

- 1 Click **Ok**.

Your network configuration should now be properly set.

Adding Drivers to the vConverter PE Image - Using the WAIK

For multiple conversions to the same type of hardware, it may make more sense to modify the VistaPE image rather than load the drivers at run time. Using the Windows Automated Installation Kit (WAIC) from Microsoft, you can add the desired drivers to the image ISO.

Step 1: Loading WAIK

- 1 Verify that you have installed vConverter PXE Boot Image (PxeSetup.msi). For more information, please refer to the section “Installing the PXE Service” in the *vConverter Installation and Setup Guide*.
- 2 Download and Install WAIK (Windows Automation Installation Kit, version 936330AIK):

<http://www.microsoft.com/downloads/details.aspx?FamilyID=94bb6e34-d890-4932-81a5-5b50c657de08&DisplayLang=en>

- a Click **Save** or **Save this program to your computer**. Windows AIK is distributed as an .img file.
 - b Burn the saved img to a DVD.
 - c Insert the DVD into the machine.
 - d Click **Windows AIK Setup** to begin the installation.
- 3 Open the Windows command prompt by clicking **Start>Run**. At the Run line, enter `cmd.exe`, then click **OK**.

Step 2: Mounting the ISO

- 1 Run the following commands to configure WAIK with a default environment.

```
set WAIKHOME=%ProgramFiles%\Windows AIK
set WIM_MOUNTED_FOLDER=C:\Temp\VistaPE
set VCONVERTOR_HOME=C:\Program Files\Vizioncore\vConverter\Bin\
```

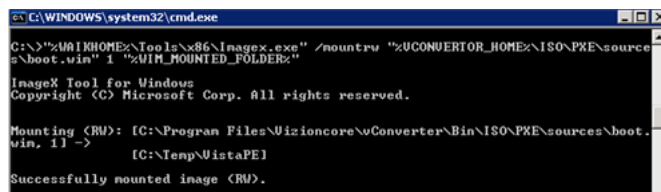
Note The `WIM_MOUNTED_FOLDER` variable can be used to specify any existing empty folder for temporary files.

Note The `VCONVERTOR_HOME` variable should be set to vConverter installation directory. If you have 64-bit OS you should specify the following folder where vConverter installed by default: `C:\Program Files (x86)\Vizioncore\vConverter\Bin\`.

- 2 Mount boot.wim. To do this type following command:

```
"%WAIKHOME%\Tools\x86\Imagex.exe" /mountw
"%VCONVERTOR_HOME%\ISO\PXESources\boot.wim" 1
"%WIM_MOUNTED_FOLDER%"
```

Note The above text is a single command. You should receive a confirmation as shown below:



```
C:\WINDOWS\system32\cmd.exe
C:\>"%WAIKHOME%\Tools\x86\Imagex.exe" /mountw "%VCONVERTOR_HOME%\ISO\PXESources\boot.wim" 1 "%WIM_MOUNTED_FOLDER%"
ImageX Tool for Windows
Copyright (C) Microsoft Corp. All rights reserved.
Mounting <RW>: [C:\Program Files\Vizioncore\vConverter\Bin\ISO\PXESources\boot.wim, 1] -> [C:\Temp\VistaPE]
Successfully mounted image <RW>.
```


Step 3: Loading Drivers

The VistaPE ISO image has been extracted to the *WIM_Mounted_Folder* directory and is now available to you for modification.

Install necessary drivers using the following command:

```
%WAIKHOME%\Tools\PETools\Peimg.exe" /inf=<Path to a driver inf file> /image="%WIM_MOUNTED_FOLDER%
```

Where <Path to a driver inf file> is replaced with the correct path.

Step 4: Create a New ISO

- 1 When all drivers are installed run following command to commit changes:

```
"%WAIKHOME%\Tools\x86\Imagex.exe" /unmount /commit  
"%WIM_MOUNTED_FOLDER%"
```

- 2 Create an ISO image:

```
"%WAIKHOME%\Tools\x86\oscdimg" -  
B"%WAIKHOME%\Tools\PETools\x86\boot\etfsboot.com" -H -  
lHumboldt -N -Oi "%VCONVERTOR_HOME%\ISO\PEX" "<Output  
Path>\VistaPE.iso"
```

Note Replace the <Output Path> in the command above with the desired output folder.

Compatible Drivers

The VistaPE boot image includes support for the following hardware drivers:

- [Network](#)
- [SCSI / RAID Adapters](#)
- [IDE/ATA Adapters](#)

Network

SiS	SiS 900 PCI Fast Ethernet Adapter
SiS	SiS 900 PCI Fast Ethernet Adapter
SiS	SiS 900 PCI Fast Ethernet Adapter
SiS	SiS 900 PCI Fast Ethernet Adapter
IBM	Integrated 10/100 Ethernet Controller
IBM	Integrated 10/100 Ethernet Controller
IBM	IBM 10/100 EtherJet PCI Adapter
IBM	IBM Netfinity 10/100 Ethernet Adapter
IBM	IBM 10/100 EtherJet Integrated LAN with Alert on LAN
IBM	IBM Netfinity 10/100 Ethernet Security Adapter 2
IBM	IBM 10/100 EtherJet PCI Management Adapter
IBM	IBM 10/100 EtherJet PCI Adapter with Alert on LAN
IBM	IBM 10/100 EtherJet Secure Management Adapter
IBM	IBM Netfinity 10/100 Ethernet Security Adapter
IBM	Intel(R) PRO/100 S Network Connection
IBM	IBM 10/100 Dual Port Server Adapter
IBM	Intel(R) PRO/100 VE Desktop Connection
IBM	IBM iSeries 2892 10/100 Ethernet Port
IBM	Intel(R) PRO/100 VE Network Connection
IBM	IBM 10/100 NetFinity Fault Tolerant Adapter
IBM	IBM iSeries 10/100 adapter
SONY	SiS 900 PCI Fast Ethernet Adapter
SONY	SiS 900 PCI Fast Ethernet Adapter
Microsoft	Microsoft Tun Miniport Adapter
Microsoft	Microsoft ISATAP Adapter
Microsoft	Microsoft 6to4 Adapter
Microsoft	Microsoft Direct Point-to-point Adapter
Microsoft	Microsoft Loopback Adapter
Microsoft	Microsoft(R) USB Adapter MN-110
Microsoft	Microsoft(R) Notebook Adapter MN-120
Microsoft	Microsoft(R) PCI Adapter MN-130
Microsoft	Bluetooth Device (Personal Area Network)
Microsoft	Bluetooth Device (RFCOMM Protocol TDI)
Microsoft	RAS Async Adapter
Microsoft	Infrared Port
Microsoft	Infrared Modem Port
Microsoft	WAN Miniport (L2TP)
Microsoft	WAN Miniport (PPTP)
Microsoft	WAN Miniport (AppleTalk)
Microsoft	WAN Miniport (Network Monitor)
Microsoft	WAN Miniport (IP)
Microsoft	WAN Miniport (IPv6)
Microsoft	WAN Miniport (IPX)
Microsoft	WAN Miniport (NetBEUI, Dial In)
Microsoft	WAN Miniport (NetBEUI, Dial Out)
Microsoft	WAN Miniport (PPPOE)
Amertek	Amertek C110TX PCI Fast Ethernet Adapter
VIA Technologies, Inc.	VIA Rhine III Compatible Management Adapter
VIA Technologies, Inc.	VIA Rhine III Compatible Fast Ethernet Adapter
VIA Technologies, Inc.	VIA Rhine II Compatible Fast Ethernet Adapter
VIA Technologies, Inc.	VIA VT86C100A Rhine Compatible Fast Ethernet Adapter
VIA Technologies, Inc.	VIA Rhine III Management Adapter

VIA Technologies, Inc.	VIA Rhine III Management Adapter
VIA Technologies, Inc.	VIA Rhine III Fast Ethernet Adapter
VIA Technologies, Inc.	VIA Rhine III Fast Ethernet Adapter
VIA Technologies, Inc.	VIA Rhine II Fast Ethernet Adapter
VIA Technologies, Inc.	VIA Rhine II Fast Ethernet Adapter
VIA Technologies, Inc.	VIA VT86C100A Rhine Fast Ethernet Adapter
VIA Technologies, Inc.	VIA VT86C100A Rhine Fast Ethernet Adapter
D-Link	D-Link DFE-538TX PCI Fast Ethernet Adapter
D-Link	D-Link DFE-530TX+ PCI Fast Ethernet Adapter (rev.F)
D-Link	D-Link DFE-530TX+ PCI Fast Ethernet Adapter (rev.F)
D-Link	D-Link DFE-520TX PCI Fast Ethernet Adapter
D-Link	D-Link DFE-520TX PCI Fast Ethernet Adapter
D-Link	D-Link DFE-530TX PCI Fast Ethernet Adapter (rev.D)
D-Link	D-Link DFE-530TX PCI Fast Ethernet Adapter (rev.D)
D-Link	D-Link DFE-530TX PCI Fast Ethernet Adapter (rev.C)
D-Link	D-Link DFE-530TX PCI Fast Ethernet Adapter (rev.C)
D-Link	D-Link DFE-530TX PCI Fast Ethernet Adapter (rev.B)
D-Link	D-Link DFE-530TX PCI Fast Ethernet Adapter (rev.B)
D-Link	D-Link DFE-530TX PCI Fast Ethernet Adapter (rev.A)
D-Link	D-Link DFE-530TX PCI Fast Ethernet Adapter (rev.A)
D-Link	Intel(R) PRO/100 VE Adapter
D-Link	D-Link DE-530+ PCI Ethernet Adapter
D-Link	D-Link DFE-500TX PCI Fast Ethernet Adapter (Rev B/C)
D-Link	D-Link DFE-500TX PCI Fast Ethernet Adapter (Rev D)
D-Link	D-Link DFE-500TX PCI Fast Ethernet Adapter (Rev E)
D-Link	D-Link DFE-550TX FAST Ethernet 10/100 Adapter
D-Link	D-Link DFE-580TX 4 Port Server Adapter
D-Link	D-Link DL10050 based 10/100 Adapter
D-Link	D-Link DGE-500SX Giga-Ether Adapter
D-Link	D-Link DGE-550SX Gigabit Ethernet Adapter
D-Link	D-Link DGE-550T Gigabit Ethernet Adapter
D-Link	D-Link DL2000 Gigabit Ethernet Adapter (generic)
D-Link	D-Link DGE-530T Gigabit Ethernet Adapter
Corega K.K.	corega FEther PCI-TXL Ethernet Adapter
Corega K.K.	corega FEther PCI-TXM Ethernet Adapter
Corega K.K.	corega FastEther II PCI-TX Ethernet Adapter
corega K.K.	corega GEther PCI-T32
corega K.K.	corega FEther USB2-TX
corega K.K.	corega FEther USB-TXS
corega K.K.	corega FEtherII PCC-TXD LAN Card
ELECOM	Laneed LD-10/100AWL Fast Ethernet Adapter
ELECOM	Laneed LD-10/100AL PCI Fast Ethernet Adapter (rev.B)
ELECOM	Laneed LD-10/100AL PCI Fast Ethernet Adapter (rev.A)
Digitalchina/D-Link	Digitalchina/D-Link DFE-530TX PCI Fast Ethernet Adapter (rev.B)
I-O DATA DEVICE, INC.	I-O DATA ET100-PCI-S Fast Ethernet Adapter
PLANEX COMMUNICATIONS INC.	Planex FNW-9702-T Fast Ethernet Adapter
PLANEX COMMUNICATIONS INC.	Planex FNW-9700-T Fast Ethernet Adapter
CNet Technology Inc.	CNet 10/100 Mbps PCI Wake On LAN Fast Ethernet Adapter
CNet Technology Inc.	CNet 10/100 Mbps PCI Fast Ethernet Adapter
EDIMAX	EDIMAX EN-9150 SERIES PCI Fast Ethernet Adapter

GIGA-BYTE TECHNOLOGY CO., LTD	GN-FE605 Fast Ethernet Adapter
GIGA-BYTE TECHNOLOGY CO., LTD	GN-FE605M Management Ethernet Adapter
The Linksys Group Inc.	EtherFast 10/100 Managed Network Adapter
The Linksys Group Inc.	EtherFast 10/100 Managed Network Adapter
Intel	Intel(R) PRO/1000 PT Dual Port Network Connection
Intel	Intel(R) PRO/1000 PT Dual Port Server Connection
Intel	Intel(R) PRO/1000 PT Dual Port Server Adapter
Intel	Intel(R) PRO/1000 PF Dual Port Server Adapter
Intel	Intel(R) PRO/1000 PB Dual Port Server Connection
Intel	Intel(R) PRO/1000 PT Server Adapter
Intel	Intel(R) PRO/1000 PT Network Connection
Intel	Intel(R) PRO/1000 PF Server Adapter
Intel	Intel(R) PRO/1000 PF Network Connection
Intel	Intel(R) PRO/1000 PB Server Connection
Intel	Intel(R) PRO/1000 PM Network Connection
Intel	Intel(R) PRO/1000 PL Network Connection
Intel	Intel(R) PRO/1000 EB Network Connection with I/O Acceleration
Intel	Intel(R) PRO/1000 EB Backplane Connection with I/O Acceleration
Intel	Intel(R) 82566MM Gigabit Platform LAN Connect
Intel	Intel(R) 82566DM Gigabit Platform LAN Connect
Intel	Intel(R) 82566DC Gigabit Platform LAN Connect
Intel	Intel(R) 82562V 10/100 Platform LAN Connect
Intel	Intel(R) 82566MC Gigabit Platform LAN Connect
Intel	Intel(R) PRO/1000 PT Desktop Adapter
Intel	Intel(R) PRO/1000 EBI Network Connection with I/O Acceleration
Intel	Intel(R) PRO/1000 EBI Backplane Connection with I/O Acceleration
Intel	Intel(R) PRO/1000 PT Quad Port Server Adapter
Intel	Intel(R) PRO/1000 XT Server Adapter
Intel	Intel(R) PRO/1000 XT Desktop Adapter
Intel	iSeries 1000/100/10 Ethernet Adapter
Intel	Intel(R) PRO/1000 XT Network Connection
Intel	Intel(R) PRO/1000 XF Server Adapter
Intel	iSeries Gigabit Ethernet Adapter
Intel	Intel(R) PRO/1000 XF Network Connection
Intel	Intel(R) 82544GC Based Network Connection
Intel	Intel(R) PRO/1000 T Desktop Adapter
Intel	Intel(R) PRO/1000 T Network Connection
Intel	Intel(R) PRO/1000 MT Desktop Adapter
Intel	Intel(R) PRO/1000 MT Network Connection
Intel	Intel(R) PRO/1000 MT Mobile Connection
Intel	Intel(R) PRO/1000 MT Server Adapter
Intel	Intel(R) PRO/1000 MF Server Adapter
Intel	Intel(R) PRO/1000 MF Server Adapter (LX)
Intel	Intel(R) PRO/1000 MT Dual Port Server Adapter
Intel	Intel(R) PRO/1000 MT Dual Port Network Connection
Intel	Intel(R) PRO/1000 MF Dual Port Server Adapter
Intel	Intel(R) PRO/1000 MF Dual Port Network Connection
Intel	Intel(R) PRO/1000 MT Desktop Connection
Intel	Intel(R) PRO/1000 MT Network Adapter
Intel	Intel(R) PRO/1000 CT Network Connection
Intel	Intel(R) PRO/1000 CT Desktop Connection
Intel	Intel(R) PRO/1000 MT Quad Port Server Adapter

Intel	Intel(R) PRO/1000 MT Quad Port Network Connection
Intel	Intel(R) PRO/1000 MT Server Connection
Intel	Intel(R) PRO/1000 GT Server Adapter
Intel	Intel(R) PRO/1000 MF Server Adapter(LX)
Intel	Intel(R) PRO/1000 MB Server Connection
Intel	Intel(R) PRO/1000 GT Dual Port Server Adapter
Intel	Intel(R) PRO/1000 MB Dual Port Server Connection
Intel	Intel(R) PRO/1000 GT Desktop Adapter
Intel	Intel(R) PRO/1000 P Dual Port Server Adapter
Intel	Intel(R) PRO/1000 GT Quad Port Server Adapter
Intel	Intel 21140 PCI Fast Ethernet Adapter (Emulated)
Intel	Intel(R) PRO/100+ PCI Adapter
Intel	Intel(R) PRO/100+ PCI Adapter
Intel	Intel(R) PRO/100+ PCI Adapter
Intel	Intel(R) PRO/100+ Management Adapter
Intel	Intel(R) PRO/100+ Management Adapter
Intel	Intel(R) PRO/100+ Alert On LAN 2* Adapter
Intel	Intel(R) PRO/100+ Management Adapter with Alert On LAN*
Intel	Intel(R) PRO/100 Desktop Adapter
Intel	Intel(R) PRO/100 Desktop Adapter
Intel	Intel(R) PRO/100 S Management Adapter
Intel	Intel(R) PRO/100 S Management Adapter
Intel	Intel(R) PRO/100 S Advanced Management Adapter
Intel	Intel(R) PRO/100+ Management Adapter with Alert On LAN* GC
Intel	Intel(R) PRO/100 S Desktop Adapter
Intel	Intel(R) PRO/100 S Desktop Adapter
Intel	Intel(R) PRO/100+ Server Adapter (PILA8470B)
Intel	Intel(R) PRO/100 S Server Adapter
Intel	Intel(R) PRO/100 S Server Adapter
Intel	Intel(R) PRO/100+ Dual Port Server Adapter
Intel	Intel(R) PRO/100+ Management Adapter with Alert On LAN* G Server
Intel	Intel(R) PRO/100 Server Adapter
Intel	Intel(R) PRO/100 Server Adapter
Intel	Intel(R) 82559 Fast Ethernet LAN on Motherboard
Intel	Intel(R) 82559 Fast Ethernet LAN On Motherboard
Intel	Intel(R) 82559 Fast Ethernet LOM with Basic Alert on LAN*
Intel	Intel(R) 82559 Fast Ethernet LOM with Alert on LAN 2*
Intel	Intel(R) PRO/100 S Network Connection
Intel	Intel(R) PRO/100 S Network Connection
Intel	Intel(R) PRO/100 Network Connection
Intel	Intel(R) PRO/100 Network Connection
Intel	Intel(R) PRO/100 Network Connection
Intel	Intel(R) PRO/100 M Desktop Adapter
Intel	Intel(R) PRO/100 M Desktop Adapter
Intel	Intel(R) PRO/100 Dual Port Server Adapter
Intel	Intel(R) PRO/100 S Dual Port Server Adapter
Intel	Intel(R) PRO/100 S Dual Port Server Adapter
Intel	Intel(R) PRO/100 M Mobile Network Connection
Intel	Intel(R) PRO/100 VE Desktop Adapter
Intel	Intel(R) PRO/100 VM Desktop Adapter
Intel	Intel(R) PRO/100 VM Desktop Adapter
Intel	Intel(R) PRO/100 VE Network Connection
Intel	Intel(R) PRO/100 VE Network Connection
Intel	Intel(R) PRO/100 VM Network Connection

Intel	Intel(R) PRO/100 VM Network Connection
Intel	Intel(R) PRO/100 P Mobile Combo Adapter
Intel	Intel(R) PRO/100 P Mobile Adapter
Intel	Intel(R) 82562 based Fast Ethernet Connection
Intel	Intel(R) 82562 based Fast Ethernet Connection
Intel	Intel 21040 Based PCI Ethernet Adapter
Intel	Intel 21041 Based PCI Ethernet Adapter
Intel	Intel 21140 Based PCI Fast Ethernet Adapter
Intel	Intel 21143 Based PCI Fast Ethernet Adapter
Intel	82562EH based Phoneline Desktop Adapter
Intel	Intel(R) PRO/10+ PCI Adapter
Intel	Intel(R) PRO/100B PCI Adapter (TX)
Intel	Intel(R) PRO/100B PCI Adapter (T4)
Intel	Intel(R) PRO/100 WiM PCI Adapter
Intel	Intel 82557 Integrated Ethernet PCI (10/100)
Intel	82557 Integrated Ethernet with Wake on LAN
Intel	Intel 82558 Integrated Ethernet
Intel	Intel 82558 Integrated Ethernet with Wake on LAN
Intel	Intel(R) PRO/100+ Server Adapter
Intel	Intel(R) PRO/100 VE Desktop Connection
Intel	iSeries 2892 10/100 Ethernet Port
Intel	Intel(R) PRO/100 S+ Desktop Adapter
Intel	Intel(R) PRO/100 S+ Server Adapter
Intel	Intel(R) 82559 Fast Ethernet LOM with Alert on LAN*
Intel	Intel(R) 82559 Fast Ethernet LOM with Alert on LAN* 2
Intel	Intel(R) PRO/100 S Mobile LAN on Motherboard
Intel	NetServer 10/100TX PCI LAN Adapter
Intel	Intel 8255x Fast Ethernet
Intel	Intel(R) PRO/100 M Mobile Connection
Intel	Intel(R) PRO/100 M Network Connection
Intel	Intel(R) 82598EB Multi-Function Network Device
Intel	Intel(R) 10 Gigabit XF SR Dual Port Server Adapter
Intel	Intel(R) 82598EB 10 Gigabit AF Dual Port Network Connection
Intel	Intel(R) 10 Gigabit XF SR Server Adapter
Intel	Intel(R) 82598EB 10 Gigabit AF Network Connection
Intel	Intel(R) 82598EB 10 Gigabit AT CX4 Network Connection
Intel	Intel(R) Advanced Network Services Virtual Adapter
Hewlett Packard	HP NetServer 10/100TX PCI LAN Adapter
NEC	NEC PC-9821X-B06(PCI) or compatible/Intel 82557 Ethernet
NEC	NEC PK-UG-X006(PCI) or compatible Fast Ethernet Adapter
NEC	NEC 82559 Fast Ethernet Adapter
NEC	NEC PC-9821NR-B06
NEC	Intel 21143 Based PCI Fast Ethernet Adapter
Acer	ACER NIC-559A PRO/100+ with WOL
Acer	ACER NIC-559A PRO/100+ with Alert On LAN 2*
Acer	ACER T62L158 PRO/100+ with Alert On LAN 2*
Acer	AcerLan ALN-315
Fujitsu Siemens	Fujitsu Siemens Computers 82558 Onboard Ethernet with WoL
Fujitsu Siemens	Fujitsu Siemens Computers 82559 Onboard Ethernet with WoL
Fujitsu Siemens	Fujitsu Siemens Computers 82559 Onboard Ethernet with WoL and AoL
Fujitsu Siemens	Fujitsu Siemens Computers Server Onboard LAN with Intel 82558
Fujitsu Siemens	Fujitsu Siemens Computers Server Onboard LAN with Intel 82559C
Toshiba	Intel 8255x PCI Ethernet Adapter (10/100)

Toshiba	Intel(R) PRO/100 VE Network Connection
Toshiba	Toshiba Fast Ethernet PCI LAN Card
Toshiba	Toshiba Fast Ethernet Cardbus LAN Card
Fujitsu	Intel 8255x PCI Ethernet Adapter (10/100)
Fujitsu	Intel(R) PRO/100 VM Network Connection
Samsung	Intel(R) PRO/100 VE Desktop Adapter
Samsung	Intel(R) PRO/100 VE Network Connection
Trigem	Intel(R) PRO/100 VE Network Connection
Dell	Intel 8255x PCI Ethernet Adapter (10/100)
Atheros Communications Inc.	Atheros AR5002G Wireless Network Adapter
Atheros Communications Inc.	Atheros AR5002X Wireless Network Adapter
Atheros Communications Inc.	Atheros AR5004G Wireless Network Adapter
Atheros Communications Inc.	Atheros AR5004X Wireless Network Adapter
Atheros Communications Inc.	Atheros AR5005GS Wireless Network Adapter
Atheros Communications Inc.	Atheros AR5005G Wireless Network Adapter
Atheros Communications Inc.	Atheros AR5006XS Wireless Network Adapter
Atheros Communications Inc.	Atheros AR5006X Wireless Network Adapter
Atheros Communications Inc.	Atheros AR5006XS Wireless Network Adapter
Atheros Communications Inc.	Atheros AR5006EX Wireless Network Adapter
Atheros Communications Inc.	Atheros AR5006EGS Wireless Network Adapter
Atheros Communications Inc.	Atheros AR5006EG Wireless Network Adapter
Atheros Communications Inc.	Atheros AR5006GS Wireless Network Adapter
Atheros Communications Inc.	Atheros AR5006G Wireless Network Adapter
Atheros Communications Inc.	Atheros Wireless Network Adapter
Atheros Communications Inc.	IEEE 802.11a/g Wireless LAN Adapter (A)
Atheros Communications Inc.	Linksys Wireless-G Notebook Adapter
Atheros Communications Inc.	Linksys Wireless A+G Notebook Adapter
Atheros Communications Inc.	Cisco Aironet 802.11a/b/g Wireless Adapter
Marvell	Marvell Yukon 88E8001/8003/8010 PCI Gigabit Ethernet Controller
Marvell	Marvell Yukon 88E8021 PCI-X IPMI Gigabit Ethernet Controller
Marvell	Marvell Yukon 88E8022 PCI-X IPMI Gigabit Ethernet Controller
Marvell	Marvell Yukon 88E8061 PCI-E IPMI Gigabit Ethernet Controller
Marvell	Marvell Yukon 88E8062 PCI-E IPMI Gigabit Ethernet Controller
Marvell	Marvell Yukon 88E8035 PCI-E Fast Ethernet Controller
Marvell	Marvell Yukon 88E8036 PCI-E Fast Ethernet Controller
Marvell	Marvell Yukon 88E8038 PCI-E Fast Ethernet Controller
Marvell	Marvell Yukon 88E8039 PCI-E Fast Ethernet Controller
Marvell	Marvell Yukon 88EC033 PCI-E Fast Ethernet Controller
Marvell	Marvell Yukon 88E8052 PCI-E ASF Gigabit Ethernet Controller
Marvell	Marvell Yukon 88E8050 PCI-E ASF Gigabit Ethernet Controller
Marvell	Marvell Yukon 88E8053 PCI-E Gigabit Ethernet Controller
Marvell	Gigabit ExpressCard Adapter
Marvell	PLANEX GEX-1000T ExpressCard Gigabit LAN Adapter
Marvell	Marvell Yukon 88E8055 PCI-E Gigabit Ethernet Controller
Marvell	Marvell Yukon 88E8056 PCI-E Gigabit Ethernet Controller
Marvell	Marvell Yukon 88EC036 PCI-E Gigabit Ethernet Controller
Marvell	Marvell Yukon 88EC042 PCI-E Gigabit Ethernet Controller
Marvell	SysKonnect SK-9871 V2.0 Gigabit Ethernet 1000Base-ZX Adapter, PCI64, Fiber ZX/SC
Marvell	SysKonnect SK-9861 V2.0 Gigabit Ethernet 1000Base-SX Adapter, PCI64, Fiber SX/VF-45
Marvell	SysKonnect SK-9851 V2.0 Gigabit Ethernet 1000Base-SX Adapter, PCI64, Fiber SX/MTRJ

Marvell	SysKonnect SK-9843 V2.0 Gigabit Ethernet 1000Base-SX Adapter, PCI64, Fiber SX/SC
Marvell	SysKonnect SK-9841 V2.0 Gigabit Ethernet 1000Base-LX Adapter, PCI64, Fiber LX/SC
Marvell	SysKonnect SK-9821 V2.0 Gigabit Ethernet 10/100/1000Base-T Adapter, PCI64, Copper RJ-45
Marvell	SysKonnect SK-9521 V2.0 10/100/1000Base-T Adapter, PCI, Copper RJ-45
Marvell	SysKonnect Marvell RDK-8012 10/100/1000Base-T Adapter, PCI, Copper RJ-45
Marvell	SysKonnect Marvell RDK-8011 10/100/1000Base-T Adapter, PCI, Copper RJ-45
Marvell	SysKonnect Marvell RDK-8009 10/100/1000Base-T Adapter, PCI, Copper RJ-45
Marvell	SysKonnect Marvell RDK-8008 10/100/1000Base-T Adapter, PCI, Copper RJ-45
Marvell	SysKonnect Marvell RDK-8007 10/100/1000Base-T Adapter, PCI, Copper RJ-45
Marvell	SysKonnect Marvell RDK-8006 10/100/1000Base-T Adapter, PCI, Copper RJ-45
Marvell	SysKonnect Marvell RDK-8004 10/100/1000Base-T Adapter, PCI, Copper RJ-45
Marvell	SysKonnect Marvell RDK-8003 10/100/1000Base-T Adapter, PCI, Copper RJ-45
Marvell	SysKonnect Marvell RDK-8002 10/100/1000Base-T Adapter, PCI, Copper RJ-45
Marvell	SysKonnect Marvell RDK-8001 10/100/1000Base-T Adapter, PCI, Copper RJ-45
Marvell	SysKonnect SK-9C21 10/100/1000Base-T Adapter, ExpressCard
Marvell	SysKonnect SK-9E21D 10/100/1000Base-T Adapter, PCI-Express, Copper RJ-45
Marvell	SysKonnect SK-9E21 10/100/1000Base-T Server Adapter, PCI-Express, Copper RJ-45
Marvell	SysKonnect SK-9E22 10/100/1000Base-T Dual Port Server Adapter, PCI-Express, 2 Copper RJ-45
Marvell	SysKonnect SK-9E81 1000Base-SX Server Adapter, PCI-Express, Fiber SX/LC
Marvell	SysKonnect SK-9E82 1000Base-SX Dual Port Server Adapter, PCI-Express, 2 Fiber SX/LC
Marvell	SysKonnect SK-9E91 1000Base-LX Server Adapter, PCI-Express, Fiber LX/LC
Marvell	SysKonnect SK-9E92 1000Base-LX Dual Port Server Adapter, PCI-Express, 2 Fiber LX/LC
Marvell	SysKonnect SK-9I22 10/100/1000 Base-T Dual Port Express Module
Marvell	SysKonnect SK-9S21 10/100/1000Base-T Server Adapter, PCI-X, Copper RJ-45
Marvell	SysKonnect SK-9S22 10/100/1000Base-T Dual Port Server Adapter, PCI-X, 2 Copper RJ-45

Marvell	SysKonnect SK-9S81 1000Base-SX Server Adapter,PCI-X, Fiber SX/LC
Marvell	SysKonnect SK-9S82 1000Base-SX Dual Port Server Adapter, PCI-X, 2 Fiber SX/LC
Marvell	SysKonnect SK-9S91 1000Base-LX Server Adapter,PCI-X, Fiber LX/LC
Marvell	SysKonnect SK-9S92 1000Base-LX Dual Port Server Adapter, PCI-X, 2 Fiber LX/LC
Marvell	SysKonnect SK-9P22 10/100/1000 Base-T Dual Port PMC card
Marvell	TPMC-GBE-CO
Marvell	SysKonnect SK-9P82 1000 Base-SX Dual Port PMC card
Marvell	TPMC-GBE-FI
Marvell	Generic Marvell Yukon Chipset based Ethernet Controller
NVIDIA	NVIDIA nForce Networking Controller
Realtek Semiconductor Corp.	Realtek RTL8139/810x Family Fast Ethernet NIC
Realtek Semiconductor Corp.	Realtek RTL8139/810x Family Fast Ethernet NIC
Realtek Semiconductor Corp.	Realtek RTL8139/810x Family Fast Ethernet NIC
Realtek Semiconductor Corp.	Realtek RTL8139/810x Family Fast Ethernet NIC
Realtek Semiconductor Corp.	Realtek RTL8139C+ Fast Ethernet NIC
Realtek Semiconductor Corp.	Realtek RTL8139C+ Fast Ethernet NIC
Realtek Semiconductor Corp.	Realtek RTL8139C+ Fast Ethernet NIC
Realtek Semiconductor Corp.	(MOBILE ASSIST)Realtek RTL8139/810x Family Fast Ethernet NIC
Realtek Semiconductor Corp.	(MOBILE ASSIST)Realtek RTL8139/810x Family Fast Ethernet NIC
Realtek Semiconductor Corp.	NETGEAR FA311v2 PCI Adapter
Realtek Semiconductor Corp.	D-Link DFE-6901XD CardBus Card
Realtek Semiconductor Corp.	D-Link DFE-538TX 10/100 Adapter
Realtek Semiconductor Corp.	D-Link DFE-530TX+ PCI Adapter
Realtek Semiconductor Corp.	D-Link DFE-528TX PCI Adapter
Realtek Semiconductor Corp.	Realtek RTL8102E Family PCI-E Fast Ethernet NIC
Realtek Semiconductor Corp.	Realtek RTL8168/8111 PCI-E Gigabit Ethernet NIC
Realtek Semiconductor Corp.	Realtek RTL8168C(P)/8111C(P) PCI-E Gigabit Ethernet NIC
Realtek Semiconductor Corp.	Realtek RTL8169/8110 Family Gigabit Ethernet NIC
Realtek Semiconductor Corp.	Realtek RTL8169/8110 Family Gigabit Ethernet NIC
Broadcom	3Com Dual Port 1000-SX PCI-X Server NIC
Broadcom	3Com Dual Port 10/100/1000 PCI-X Server NIC
Broadcom	3Com Quad Port 10/100/1000 PCI-X Server NIC
Broadcom	Broadcom NetXtreme Gigabit Ethernet
Broadcom	Broadcom NetXtreme Gigabit Ethernet
Broadcom	Broadcom NetXtreme Gigabit Fiber
Broadcom	Broadcom NetXtreme Gigabit Fiber
Broadcom	Broadcom 570x 10/100 Integrated Controller
Broadcom	Broadcom NetXtreme FE-A
Broadcom	Broadcom NetXtreme FE-B
Broadcom	Broadcom NetXtreme 57xx Gigabit Controller
Broadcom	Broadcom NetXtreme Fast Ethernet
Broadcom	Embedded Broadcom NetXtreme 5721 PCI-E Gigabit NIC
Broadcom	Broadcom NetLink (TM) Gigabit Ethernet
Broadcom	Broadcom NetLink (TM) Fast Ethernet
Broadcom	Broadcom 570x Gigabit Integrated Controller
Broadcom	Broadcom 440x 10/100 Integrated Controller
Broadcom	Broadcom 440x 10/100 Integrated Controller
Broadcom	ASUSTeK/Broadcom 440x 10/100 Integrated Controller
Broadcom	ASUSTeK/Broadcom 440x 10/100 Integrated Controller

Broadcom	MSI/Broadcom 440x 10/100 Integrated Controller
Broadcom	MSI/Broadcom 440x 10/100 Integrated Controller
Broadcom	Broadcom 802.11g Network Adapter
Broadcom	Broadcom 802.11a Network Adapter
Broadcom	Broadcom 802.11 Multiband Network Adapter
Broadcom	Broadcom 802.11n Network Adapter
Broadcom	U.S. Robotics Wireless 802.11g PC Card Adapter
Broadcom	U.S. Robotics Wireless 802.11g PCI Adapter
Broadcom	USRobotics Wireless Nn1 PC Card (Default)
Broadcom	USRobotics Wireless Nn1 PCI Adapter (Default)
Broadcom	Linksys Wireless-G Notebook Adapter with SpeedBooster
Broadcom	Linksys Wireless-G Notebook Adapter WPC54G V3
Broadcom	Linksys Wireless-N Notebook Adapter WPC300N
Broadcom	RangeMax Next Wireless Notebook Adapter
Broadcom	RangeMax Next Wireless PCI Adapter
Broadcom	Microsoft Wireless Notebook Adapter MN-720
Broadcom	Microsoft Wireless Notebook Adapter MN-730
Realtek	Realtek RTL8169/8110 Family PCI Gigabit Ethernet NIC (NDIS 6.0)
Realtek	Realtek RTL8168/8111 Family PCI-E Gigabit Ethernet NIC (NDIS 6.0)
Realtek	Realtek RTL8101 Family PCI-E Fast Ethernet NIC (NDIS 6.0)
Realtek	Realtek RTL8029 PCI Ethernet NIC
Realtek	Realtek RTL8150 USB 10/100 Fast Ethernet Adapter
VIA Networking Technologies Inc	VIA Networking Velocity Family Gigabit Ethernet Adapter
ULi Electronics Inc.	ULi M526X Ethernet Controller
ULi Electronics Inc.	ULi PCI Fast Ethernet Controller
3Com	3Com EtherLink 10/100 PCI For Complete PC Management NIC (3C905C-TX)
3Com	3Com 10/100 Mini PCI Ethernet Adapter
3Com	3Com EtherLink 10/100 PCI Combo NIC (3C905B-COMBO)
3Com	3Com EtherLink 100 PCI Fiber NIC (3C905B-FX)
3Com	3Com EtherLink 10/100 PCI TX NIC (3C905B-TX)
3Com	3Com EtherLink PCI Fiber NIC (3C900B-FL)
3Com	3Com EtherLink PCI TPO NIC (3C900B-TPO)
3Com	3Com EtherLink PCI Combo NIC (3C900B-COMBO)
3Com	3Com EtherLink PCI TPC NIC (3C900B-TPC)
3Com	3Com 3C920B-EMB Integrated Fast Ethernet Controller
3Com	3Com 3C920B-EMB-WNM Integrated Fast Ethernet Controller
3Com	3Com 3C920 Integrated Fast Ethernet Controller (3C905C-TX Compatible)
3Com	3Com 3C918 Integrated Fast Ethernet Controller (3C905B-TX Compatible)
3Com	3Com EtherLink 10/100 PCI NIC (3C905-TX)
3Com	3Com EtherLink 10/100 PCI T4 NIC (3C905-T4)
3Com	3Com EtherLink PCI TPO NIC (3C900-TPO)
3Com	3Com EtherLink PCI Combo NIC (3C900-COMBO)
3Com	3Com Gigabit Ethernet Server NIC (SX/TX)
3Com	IBM eServer iSeries Gigabit Ethernet Adapter
3Com	3Com Gigabit LOM (3C940)
3Com	3Com Gigabit NIC (3C2000)
3Com	3Com Gigabit NIC
3Com	3Com 10/100 PCI NIC w/3XP (3CR990-TX-95)
3Com	3Com 10/100 PCI NIC w/3XP (3CR990-TX-97)
3Com	3Com 10/100 Secure NIC (3CR990B-97)

3Com	3Com 100 Secure Fiber NIC (3CR990B-FX-97)
3Com	3Com 10/100 Secure Server NIC (3CR990B-97)
3Com	3Com 100 Secure Fiber NIC (3CR990-FX-97)
3Com	3Com 10/100 PCI Server NIC w/3XP (3CR990SVR95)
3Com	3Com 10/100 PCI Server NIC w/3XP (3CR990SVR97)
3Com	3Com 3C2000-T Gigabit Adapter
3Com	3Com 3C940 Gigabit LOM Ethernet Adapter
3Com Corporation.	3Com 3C910 Integrated Fast Ethernet Controller (3CSOH0100B-TX Compatible)
3Com Corporation.	3Com OfficeConnect 10/100 Network Interface Card (3CSOH0100B-TX)
Accton	Accton EN1207D Series PCI Fast Ethernet Adapter
Accton	Integrated 10/100 Ethernet Adapter
Accton	Accton EN2242A Series Mini-PCI Fast Ethernet Adapter
Accton	Accton EN1208 PCI Ethernet Adapter
Accton	Accton EN2212 PCMCIA Ethernet Adapter
Accton	Accton EN2216/2316 PCMCIA Ethernet Adapter
Accton	Accton Cheetah PCI Fast Ethernet Adapter
Accton	Accton EN1207-TX PCI Fast Ethernet Adapter
Accton	Accton Cardbus Fast Ethernet Adapter
Accton	Accton EN1207F Series PCI Fast Ethernet Adapter
Accton	Accton EN1207F Series PCI Fast Ethernet Adapter
Accton	Accton LM1247 Series PCI Fast Ethernet Adapter
Accton	Accton LM1247 Series PCI Fast Ethernet Adapter
Accton	Accton LM2247 Series Mini-PCI Fast Ethernet Adapter
Accton	Accton LM2247 Series Mini-PCI Fast Ethernet Adapter
Accton	Accton LM2247(A) Series Mini-PCI Fast Ethernet Adapter
Accton	Accton LM2247(A) Series Mini-PCI Fast Ethernet Adapter
Accton	Accton EN2220A Fast Ethernet Cardbus PC Card
Accton	Accton EN2220A Fast Ethernet Cardbus PC Card
Accton	Accton EN2242 Series MiniPCI Fast Ethernet Adapter
Accton	Accton EN2242 Series MiniPCI Fast Ethernet Adapter
Accton	Accton EN2320 Fast Ethernet Cardbus PC Card
Accton	Accton EN2320 Fast Ethernet Cardbus PC Card
Accton	Accton CheetahPower Enhanced 10/100 Adapter AC-EN3207
Accton Technology Corp.	Accton EN1407T Giga-bit Ethernet Adapter
Accton Technology Corp.	Accton EN1408T Giga-bit Ethernet Adapter
ASIX	ASIX AX88772 USB2.0 to Fast Ethernet Adapter
ASIX	ASIX AX88178 USB2.0 to Gigabit Ethernet Adapter
ASIX	ASIX AX88180 PCI Giga Ethernet Adapter(V3)
ASIX	ASIX AX88180 PCI Giga Ethernet Adapter(PLX)
Addtron	Addtron AEF-380TXD PCI Fast Ethernet Adapter
Allied Telesyn	Allied Telesyn AT-2800Tx Fast Ethernet Adapter
Cabletron	Cabletron DE500A PCI Fast Ethernet Adapter
Cabletron	Cabletron DE500B PCI Fast Ethernet Adapter
Compex	Compex FreedomLINE PCI Fast Ethernet Adapter
Eagle by Microdyne	Eagle by Microdyne PCI Fast EtherMAX
Kingston	Kingston EtherX KNE100TX PCI Fast Ethernet Adapter
Linksys	Linksys EtherFast 10/100 CardBus PC Card (PCMP200)
Linksys	Linksys EGI032 v2 Instant Gigabit Network Adapter
Linksys	Linksys HomeLink 10M Integrated PC Card
Linksys	Linksys Phoneline 10M Network Card
Linksys	Linksys USB 2.0 10/100 Adapter
NCR	NCR 21140 PCI Fast Ethernet Adapter

Netgear	NETGEAR FA310TX Fast Ethernet Adapter (DC21x4)
Netgear	Netgear 10/100Mbps CardBus Mobile Adapter
Netgear	Lite-On Communications Compatable PCI Fast Ethernet Adapter
Netgear	NETGEAR FA310TX Fast Ethernet Adapter (NGRPCI)
NETGEAR	NETGEAR FA330/FA331 PCI Adapter
NETGEAR	NETGEAR FA410TX Fast Ethernet PC Card
NETGEAR	NETGEAR FA411 PCMCIA Mobile Adapter
NETGEAR	NETGEAR GA302T Gigabit Adapter
Netgear	NETGEAR GA620 Gigabit Ethernet Card
Netgear	NETGEAR GA620T 10/100/1000 Ethernet Card
NETGEAR	NETGEAR GA621 Gigabit Fiber Adapter
NETGEAR	NETGEAR FA311/312 PCI Adapter
Netgear	NETGEAR GA311 Gigabit Adapter
NETGEAR	NETGEAR GA311 Gigabit Adapter
Racore	Racore Cardbus Fast Ethernet Adapter
SMC	SMC Extreme Cardbus Fast Ethernet Adapter
SMC	SMC9332BDT EtherPower 10/100
SMC	SMC9332BVT EtherPower 14 10/100
SMC	SMC9334BDT EtherPower 10/100 (one port)
SMC	SMC EZ CardBus 10/100 Fast Ethernet Adapter (SMC8034)
SMC	SMC EZ Card 10/100 (SMC1255TX)
SMC	SMC EZ CardBus-II 10/100 PC Card (SMC8034)
SMC	SMC EZ CardBus-II 10/100 PC Card (SMC8036)
SMC	SMC Compact USB to Ethernet converter
SMC	EZ Connect USB/Ethernet Series Converter
SMC	EZ Connect USB to Dual Speed Ethernet Converter
SMC	SMC EZ Card 10/100 (SMC1244TX V2)
SMC	SMC EZ Card 1000 (SMC9452TX V.2)
SMC	SMC 10/100 PC Card
SMC	SMC EZ Card 10/100 PCI (SMC1211 Series)
SMC	SMC 10/100 PC Card (SMC8041 V.2)
SMC	SMC EZ CardBus-II 10/100 PC Card
TDK	TDK Netflyer Cardbus Fast Ethernet Adapter
CHEETAH	CHEETAH ETHERCARD EN2228
ASIX Electronics	ASIX AX88140 Based PCI Fast Ethernet Adapter
ASIX Electronics	ASIX AX8814X Based PCI Fast Ethernet Adapter
ASIX Electronics	CNet PRO110 PCI Fast Ethernet Adapter
ASIX Electronics	ASIX AX88190 Based PCMCIA Fast Ethernet Adapter
ASIX Electronics	ASIX AX88796B Based ISA Ethernet Adapter
PCMCIA Technology Inc.	PCMCIA 10/100 Ethernet Card
PCMCIA Technology Inc.	PCMCIA 10Mbps Ethernet Card
	%MTD800.DeviceDesc%
	100/10M Ethernet PCI Adapter
	%MTD891.DeviceDesc%
Sundance	Sundance ST201 based PCI Fast Ethernet Adapter
ADMtek Incorporated	ADMtek AN983 based ethernet adapter
ADMtek Incorporated	ADMtek AN983 10/100Mbps PCI Adapter
ADMtek Incorporated	ADMtek ADM9510 10/100Mbps Fast Ethernet Adapter
ADMtek Incorporated	ADMtek AN985 10/100Mbps Fast Ethernet Adapter
ADMtek Incorporated	ADMtek ADM9511 10/100Mbps Fast Ethernet Adapter
ADMtek Incorporated	ADMtek ADM9513 10/100Mbps Fast Ethernet Adapter
ADMtek Incorporated	ADMtek AN986 USB To Fast Ethernet Adapter
ADMtek Incorporated	ADMtek ADM8511 USB To Fast Ethernet Adapter
ADMtek Incorporated	ADMtek ADM8513 USB To Fast Ethernet Adapter

ADMTek Incorporated	ADMTek AN986 USB 10/100 MAC
AmbiCom	AmbiCom EZPort Fast Ethernet CardBus PC Card(CB100-EZ)
Conceptronic	Conceptronic CONSP100TU USB 10/100 Adapter
D-Link Corporation.	D-Link DGE-500T Gigabit Adapter
Hewlett-Packard Company	HP NC3120 Fast Ethernet NIC
Hewlett-Packard Company	HP NC3161 Fast Ethernet NIC
Hewlett-Packard Company	HP NC3160 Fast Ethernet NIC
Hewlett-Packard Company	HP NC3122 Fast Ethernet NIC
Hewlett-Packard Company	HP NC3131 Fast Ethernet NIC
Hewlett-Packard Company	HP NC3132 Fast Ethernet Module
Hewlett-Packard Company	HP NC3133 Fast Ethernet Module
Hewlett-Packard Company	HP NC3163 Fast Ethernet NIC
Hewlett-Packard Company	HP NC3162 Fast Ethernet NIC
Hewlett-Packard Company	HP NC3123 Fast Ethernet NIC
Hewlett-Packard Company	HP NC3134 Fast Ethernet NIC
Hewlett-Packard Company	HP NC3135 Fast Ethernet Upgrade Module
Altima	Altima 1000 Gigabit Ethernet (Copper)
Altima	Altima 1001 Gigabit Ethernet (IntegratedCopper)
Altima	Altima 1002 Gigabit Ethernet (IntegratedCopper)
Altima	Altima 1003 Gigabit Ethernet (IntegratedCopper)
Altima	Altima 1000 Gigabit Ethernet (Fibre)
Atheros	Atheros L1 Gigabit Ethernet 10/100/1000Base-T Controller
Atheros	Atheros L2 Fast Ethernet 10/100 Base-T Controller
Atheros	Atheros L2 Fast Ethernet 10/100 Base-T Controller
Atheros	Atheros L2 Fast Ethernet 10/100Base-T Controller
Nobrand	Nobrand PCI 10/100/1000 Gigabit Ethernet Adapter, PCI 32bit, Copper RJ-45
AMD Inc.	AMD PCNET Family Ethernet Adapter (PCI)
Allied	Allied Telesyn AT-2700TX PCI 10/100 Ethernet Adapter
Allied	Allied Telesyn AT-2700FX PCI 100Mb Ethernet Adapter
Allied	Allied Telesyn AT-2450v3 PCI Ethernet Adapter
HP	HP Ethernet with LAN remote power adapter
Belkin	Belkin Gigabit Desktop Card
Belkin	F5D5000, PCI Card/Desktop Network PCI Card
IC Plus Corp.	IC Plus IP100 10/100 Fast Ethernet Adapter
IC Plus Corp.	IC Plus IP1000 Family Gigabit Ethernet Adapter
Advanced Micro Devices (AMD)	AMD PCnet-Home Based Adapter
Diamond Multimedia	Diamond Multimedia Home Network Adapter
D-Link Corp.	D-Link DFE-690TXD CardBus PC Card
D-Link Corp.	D-Link DGE-528T Gigabit Ethernet Adapter
Linksys Group Inc.	Linksys EG1032/EG1064 Instant Gigabit Network Adapter
LinkSys Group Inc.	Linksys LNE1001X(v5) Fast Ethernet Adapter
MELCO INC.	BUFFALO LGY-PCI-TXC Fast Ethernet Adapter
MXIC	Macronix MX987xx Family Fast Ethernet Adapter
MXIC	Macronix MX987xx Family Fast Ethernet Adapter (ACPI)
MXIC	Macronix MX987xx Family Fast Ethernet Adapter (CardBus)
D-Link Corporation	D-Link DUB-E100 USB 2.0 Fast Ethernet Adapter
D-Link Corporation	D-Link DFE-530TX+ PCI Adapter
DAVICOM Semiconductor, Inc.	DAVICOM 10/100 Low Power PCI Fast Ethernet Adapter
DAVICOM Semiconductor, Inc.	DAVICOM Fiber PCI Fast Ethernet Adapter
DAVICOM Semiconductor, Inc.	DAVICOM Fiber/IP PCI Fast Ethernet Adapter
DAVICOM Semiconductor, Inc.	10/100 PCI Ethernet Adapter
DAVICOM Semiconductor, Inc.	DAVICOM 9009 PCI Fast Ethernet Adapter
DAVICOM Semiconductor, Inc.	DAVICOM DM-9102A PCI Fast Ethernet Adapter

DAVICOM Semiconductor, Inc.	DAVICOM 9102/A PCI Fast Ethernet Adapter
DAVICOM Semiconductor, Inc.	DAVICOM 1/10/100 PCI Fast Ethernet Adapter
DAVICOM Semiconductor, Inc.	DAVICOM LongRun/10/100 PCI Fast Ethernet Adapter
DAVICOM Semiconductor, Inc.	DAVICOM PCI HomeRun Adapter
DAVICOM Semiconductor, Inc.	DAVICOM PCI LongRun Adapter
DAVICOM Semiconductor, Inc.	DAVICOM 9102A Half Based Switching Adapter
DAVICOM Semiconductor, Inc.	DAVICOM 9102A Full Based Switching Adapter
DAVICOM Semiconductor, Inc.	DAVICOM 10 Base-T PCI Ethernet Adapter
DAVICOM Semiconductor, Inc.	10/100 PCI Fast Ethernet Based Adapter
DAVICOM Semiconductor, Inc.	DM9601 USB To Fast Ethernet Adapter
Madge	Smart MK4 PCI Adapter
Madge	Madge Smart 100/16/4 PCI-HS Ringnode
Madge	Madge Smart 16/4 PCI Ringnode Mk3
Madge	Madge Presto PCI 2000
Madge	Madge Presto PCI Plus
Madge	Madge Presto PCI
Madge	Smart 16/4 CardBus Mk2
Madge	Madge 16/4 CardBus Adapter
Madge	Smart 16/4 PCMCIA MK2
Madge	Madge Smart 16/4 PCMCIA Ringnode
Madge	Madge Smart 16/4 PCI Ringnode Mk2
Olicom	Olicom RapidFire 3540 HSTR 100/16/4 PCI Adapter
Olicom	Olicom RapidFire 3139 Token-Ring 16/4 PCI Adapter
Olicom	RapidFire 3140 16/4 TR PCI Adapter
Olicom	RapidFire 3140V2 16/4 TR PCI Adapter
Olicom	RapidFire 3141 16/4 TR PCI Fiber Adapter
Olicom	Olicom Token-Ring PCI/II 16/4 Adapter (OC-3137)
Olicom	Olicom GoCard 3250 Token-Ring 16/4 CardBus PC Card
Olicom	GoCard Token-Ring C30 PC Card
CNet Technology, Inc.	CNet PRO200WL PCI Fast Ethernet Adapter
CNet Technology, Inc.	CNet PRO200 PCI Fast Ethernet Adapter
Archtek Telecom Co.	10/100 Mbps PCI Ethernet Adapter
NETGEAR Incorporated	NETGEAR FA101 USB Fast Ethernet Adapter
NETGEAR Incorporated	NETGEAR FA120 USB 2.0 Fast Ethernet Adapter
Network Everywhere	Network Everywhere Fast Ethernet Adapter(NC100)
Network Everywhere	Network Everywhere Fast Ethernet Adapter(NC100 v2)
Network Everywhere	%AN985.DeviceDesc%
Network Everywhere	PCI 10/100 Fast Ethernet Adapter(DEC21140)
Network Everywhere	PCI 10/100 Fast Ethernet Adapter(DEC21143)
PC Card Series Products	PCMCIA Fast Ethernet Card
PC Card Series Products	PCMCIA Ethernet Card
CardBus	CardBus Fast Ethernet 10/100 Adapter
CardBus	CardBus Fast Ethernet PC Card Adapter manual load
CardBus	Fast Ethernet CardBus PC Card
CARDBUSs	CardBus 10/100 Fast Ethernet PC Card
CARDBUSs	CardBus Fast Ethernet Attached Port PC Card
CARDBUSs	U.S. Robotics Cardbus 10/100 Ethernet PC Card
SMC Networks	SMC EZ Networking Compact 10/100 USB 2.0 Adapter
National Datacomm Corporation	NDC ND5100 Ethernet PC Card
smartBridges	smartNIC HOT-SYNC(tm) Network Adapter
smartBridges	smartNIC2 PnP Network Adapter
SURECOM Technology Corp.	SURECOM EP-320G-TX 10/100/1000M Gigabit Ethernet Copper PCI Adapter
SURECOM Technology Corp.	SURECOM EtherPerfect-427 Lan Card

SURECOM Technology Corp.	SURECOM EP-427X 100/10M PCMCIA Adapter
SURECOM Technology Corp.	SURECOM EP-427X 16bit 100/10M Couplerless PCMCIA Adapter
SURECOM Technology Corp.	SURECOM EP-428X 32-bit 100/10M CardBus PC Card
SURECOM Technology Corp.	SURECOM EP-428X 32-bit 100/10M CardBus PC Card
SURECOM Technology Corp.	SURECOM EP-325 PCI Ethernet Adapter
SURECOM Technology Corp.	SURECOM EP-320X-R 100/10M PCI Adapter
SURECOM Technology Corp.	%MTD800.DeviceDesc%
SURECOM Technology Corp.	SURECOM EP-320X-S 100/10M Ethernet PCI Adapter
SURECOM Technology Corp.	%MTD891.DeviceDesc%
SURECOM	EP-320G-1X1/1XL SURECOM 32bit PCI Gigabit Ethernet Adapter
SURECOM	SURECOM EP-312 ISA PnP Ethernet Adapter
Surecom	SURECOM EP-9321-g/g1 802.11g 54M WLAN PCI Adapter
Surecom	SURECOM EP-9428-g 802.11g 54M WLAN CardBus Adapter
TRENDware Corp.	TEG-PCBUSR Gigabit PC Card
Silicon Integrated Systems Corp.	SiS191 1000/100/10 Ethernet Device
Silicon Integrated Systems Corp.	SiS190 100/10 Ethernet Device
Silicon Integrated Systems Corp.	SiS191 100/10 Ethernet Device
Silicon Integrated Systems Corp.	SiS191 Ethernet Device
SMC Networks, Inc.	SMC EZ Card 10/100 (SMC1255TX)
SMC Networks, Inc.	SMC EZ Card 10/100 (SMC1255TX-PF)
U.S. ROBOTICS CORPORATION	U.S. Robotics 10/100 PCI NIC TX
U.S. ROBOTICS CORPORATION	U.S. Robotics 10/100 PCI NIC TX
National Semiconductor Corp.	National Semiconductor Corp. DP83815/816 10/100 MacPhyter PCI Adapter
National Semiconductor Corp.	SOHware NSA100 10/100 PCI Network Adapter
National Semiconductor Corp.	EDIMAX EN-9140 10/100 Fast Ethernet NIC Family
National Semiconductor Corp.	CNPower200WL 10/100Mbps PCI Fast Ethernet Wake-On-LAN Adapter
National Semiconductor Corp.	CNPower200 10/100Mbps PCI Fast Ethernet Adapter
National Semiconductor Corp.	National Semiconductor DP83820 Copper Gigabit Adapter
National Semiconductor Corp.	National Semiconductor DP83820 Fiber Gigabit Adapter
National Semiconductor Corp.	Accton EN1407T Giga-bit Ethernet Adapter
National Semiconductor Corp.	Accton EN1408T Giga-bit Ethernet Adapter
Xircom	Xircom CardBus Ethernet 10/100
Xircom	Xircom CardBus Ethernet II 10/100
Xircom	Xircom CardBus Ethernet 100 + Modem 56 (Ethernet Interface)
Xircom	Xircom RealPort2 CardBus Ethernet 10/100
Xircom	Xircom RealPort2 CardBus Ethernet 10/100+Modem 56 (Ethernet Interface)
Xircom	Xircom CardBus Ethernet 10/100 Adapter manual load
Xircom	Network of Xircom CreditCard Ethernet 10/100 + Modem 56
SMC Networks, Inc	SMC TigerCard 1000
U.S. Robotics	U.S. Robotics 10/100 PCMCIA NIC TX
U.S. Robotics	U.S. Robotics 10/100/1000 PCI NIC
ZyXEL Communications Corp	Prestige USB Adapter
PCI Ethernet Adapter Manufacturer	PCI Ethernet Adapter
VIA Networking Technologies, Inc.	VIA Networking Velocity-Family Giga-bit Ethernet Adapter
Realtek Semiconductor Corp	Realtek 8180 Extensible 802.11b Wireless Device
Realtek Semiconductor Corp	Realtek 8185 Extensible Wireless Device
Realtek Semiconductor Corp	Realtek 8185 Extensible 802.11b/g Wireless Device
Realtek Semiconductor Corp	Realtek 8185 Extensible 802.11a/b/g Wireless Device

SCSI / RAID Adapters

Promise Technology	Windows Promise SATAIII150 TX2plus (tm) IDE Controller
Promise Technology	Windows Promise SATAIII150 TX4 (tm) IDE Controller
Promise Technology	Windows Promise SATA300 TX2plus (tm) IDE Controller
Promise Technology	Windows Promise SATA300 TX4 (tm) IDE Controller
Promise Technology	Promise SATA Console SCSI Processor
Promise Technology	Windows Promise SATA150 TX2plus (tm) IDE Controller
Promise Technology	Windows Promise SATA150 TX4 (tm) IDE Controller
Promise Technology	%Promise_Sata_ControllerDesc%
ULi Electronics Inc.	ULi SATA/RAID Controller (M1573)
ULi Electronics Inc.	ULi SATA II/RAID Controller (M1575/M1697)
DELL	DELL PERC 5/E Adapter RAID Controller
DELL	DELL PERC 5/i Adapter RAID Controller
DELL	DELL PERC 5/i Integrated RAID Controller
DELL	DELL PERC 6/E Adapter RAID Controller
DELL	DELL PERC 6/i Adapter RAID Controller
DELL	DELL PERC 6/i Integrated RAID Controller
DELL	DELL CERC 6/i Adapter RAID Controller
DELL	DELL CERC 6/i Integrated RAID Controller
DELL	DELL PERC 3/QC RAID Controller
DELL	DELL PERC 3/DC & PERC 3/DCL RAID Controller
DELL	DELL PERC 3/SC RAID Controller
DELL	DELL PERC 4/Di RAID Controller
DELL	DELL PERC 4/DC RAID Controller
DELL	DELL PERC 4/SC RAID Controller
DELL	DELL CERC ATAT00/4ch RAID Controller
DELL	DELL PERC 4e/Si RAID Controller
DELL	DELL PERC 4e/Di RAID Controller
DELL	DELL PERC 4e/DC RAID Controller
Dell	Dell SAS 5/E Adapter
Dell	Dell SAS 5/i Adapter
Dell	Dell SAS 5/i Integrated
Dell	Dell SAS 5/iR Integrated D/C
Dell	Dell SAS 5/iR Integrated Emb
Dell	Dell SAS 5/iR Adapter
Dell	Dell SAS 6/iR Adapter
Dell	Dell SAS 6/iR Integrated
Dell	Dell SAS 6/i Integrated
Dell	Dell PERC 4/im RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SAS 8408E RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SAS 8480E RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SAS 8344ELP RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SAS 8308ELP RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SATA 300-8ELP RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SATA 300-4ELP RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SATA 300-12E RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SAS 84016E RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SAS 8300XLP RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SAS 8888ELP RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SAS 8708ELP RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SAS 8884E RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SAS 8708E RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SATA 350-8ELP RAID Controller

LSI Logic Corp.,	LSI Logic MegaRAID SATA 350-4ELP RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SAS PCI ExpressT ROMB
LSI Logic Corp.,	Intel(R) RAID Controller SRCAS18E
LSI Logic Corp.,	Intel(R) RAID Controller SRCAS144E
LSI Logic Corp.,	Intel(R) RAID Controller SROMBSAS18E
LSI Logic Corp.,	Integrated Intel(R) RAID Controller SROMBSAS28E
LSI Logic Corp.,	MegaRAID SCSI 320-0X RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-0X RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-2E RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-2E RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-0 RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-0 RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-2 RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-2 RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-1 RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-1 RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-4X RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-4X RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-2X RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-2X RAID Controller
LSI Logic Corp.,	MegaRAID SATA 150-6 RAID Controller
LSI Logic Corp.,	MegaRAID SATA 150-4 RAID Controller
LSI Logic Corp.,	MegaRAID SATA 300-8X RAID Controller
LSI Logic Corp.,	MegaRAID SATA 300-8XLP RAID Controller
LSI Logic Corp.,	MegaRAID PCI Express(TM) ROMB
LSI Logic Corp.,	LSI Logic MegaRAID Enterprise 1200 RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID RAID Controller RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID Enterprise 1300 RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID Enterprise 1400 RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID Express 200 RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID Enterprise 1500 RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID Enterprise 1600 RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID Express 300 RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID Elite 1600 RAID Controller
LSI Logic Corp.,	MegaRAID SCSI 320-1E RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID Express 000 RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID Express 500/500LC RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID Enterprise 3000 RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID Elite 1650/1700 RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID Enterprise 1700 RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID i4 IDE RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID i4133 RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SATA 150-6 RAID Controller
LSI Logic Corp.,	LSI Logic MegaRAID SATA 150-4 RAID Controller
IBM	LSI Logic MegaRAID SAS PCI ExpressT ROMB
IBM	IBM SystemX MegaRAID SAS 8808E RAID Controller
IBM	IBM SystemX MegaRAID SAS 8884E RAID Controller
Integrated Technology Express, Inc.	ITE IT8212 ATA RAID Controller
LSI Logic	LSI Logic 8600SP PCI SCSI Adapter; 53C860 Device
LSI Logic	LSI Logic 8951U, 8952U PCI SCSI Adapter; 53C895 Device
LSI Logic	LSI Logic 875XS D, 2280X PCI SCSI Adapter; 53C875, 53C876 Device
LSI Logic	LSI Adapter, SAS 3000 series, 4-port with 1064
LSI Logic	LSI Adapter, SAS 3000 series, 8-port with 1068

LSI Logic	LSI Adapter, SAS 3000 series, 8-port with 1068E
LSI Logic	LSI Adapter, SAS 3000 series, 4-port with 1064E
LSI Logic	LSI Adapter, SAS RAID-on-Chip, 8-port with 1078
LSI Logic	LSI Adapter, Ultra320 SCSI 2000 series, w/1020/1030
LSI Logic	LSI Adapter, Ultra320 SCSI RAID series, w/1035
LSI Logic	LSI Logic Ultra160 PCI SCSI Adapter; 53C1010-33 Device
LSI Logic	LSI Logic Ultra160 PCI SCSI Adapter; 53C1010-66 Device
LSI Logic	LSI Adapter, 2Gb FC, models 44929, G2 with 929
LSI Logic	LSI Adapter, 2Gb FC, models 40919 with 919
LSI Logic	LSI Adapter, 2Gb FC, models 7202,7402 with 929X
LSI Logic	LSI Adapter, 2Gb FC, models 7102 with 919X
LSI Logic	LSI Adapter, 4Gb FC, models 7104,7204,7404 with 949X
LSI Logic	LSI Adapter, 4Gb FC, models 7104,7204,7404 with 949E
LSI Logic	LSI Logic 22910, 21002 PCI SCSI Adapter; 53C896 Device
LSI Logic	LSI Logic 8953U PCI SCSI Adapter; 53C895A Device
Intel(R) Corporation	Intel(R) RAID Controller SRCU42X
Intel(R) Corporation	Intel(R) RAID Controller SRCU42E
Intel(R) Corporation	Intel (R) RAID Controller SRC516
Intel(R) Corporation	Intel(R) RAID Controller SRCU41L
Intel(R) Corporation	Intel(R) RAID Controller SRCZCRX
Intel(R) Corporation	Intel(R) RAID Controller SRCS28X
Intel(R) Corporation	Intel(R) RAID Controller SROMBU42E
VIA Technologies, Inc.	VIA VT8251 AHCI RAID Controller
VIA Technologies, Inc.	VIA VT8237 RAID Controller
VIA Technologies, Inc.	VIA VT8237A RAID Controller
Hewlett-Packard Company	Smart Array 5300 Controller
Hewlett-Packard Company	Smart Array 5i
Hewlett-Packard Company	Smart Array 532 Controller
Hewlett-Packard Company	Smart Array 5312 Controller
Hewlett-Packard Company	Smart Array 6i
Hewlett-Packard Company	Smart Array 641 Controller
Hewlett-Packard Company	Smart Array 642 Controller
Hewlett-Packard Company	Smart Array 6400 Controller
Hewlett-Packard Company	Smart Array 6400 U320 EM Controller
Hewlett-Packard Company	Smart Array P600 Controller
Hewlett-Packard Company	Smart Array Controller
Hewlett-Packard Company	Smart Array P400 Controller
Hewlett-Packard Company	Smart Array P800 Controller
Hewlett-Packard Company	Smart Array P400i Controller
Hewlett-Packard Company	Smart Array E200 Controller
Hewlett-Packard Company	Smart Array E200i Controller
Intel	Intel(R) 82801HEM SATA RAID Controller
Intel	Intel(R) 82801HR/HH/HO SATA RAID Controller
Intel	Intel(R) 82801GHM SATA RAID Controller
Intel	Intel(R) 631xESB/632xESB SATA RAID Controller
Intel	Intel(R) 82801GR/GH SATA RAID Controller
Intel	Intel(R) 82801FR SATA RAID Controller
Intel	I2O StorPort Miniport
Emulex	Emulex LPX000 Fibre Channel Storport Driver
Silicon Integrated Systems Corp	SiS 180 RAID Controller
Silicon Integrated Systems Corp	SiS 965/966 182/1182 RAID Controller
Silicon Integrated Systems Corp.	SiS Storport AHCI Controller
ITE Tech, Inc.	ITE IT8211 ATA/ATAPI Controller
QLogic	QLogic Fibre Channel Adapter

QLogic	QLogic iSCSI Adapter
Broadcom Corporation	Broadcom NetXtreme II C-NIC iSCSI Adapter
Mylex	Mylex AccelerAID 170 Disk Array Controller
Mylex	Mylex AccelerAID 352 Disk Array Controller
Mylex	Mylex DAC1164P Disk Array Controller
Mylex	Mylex DAC960PG/PJ/PR/PT/PTL1/PRL Series Disk Array Controller
Mylex	Mylex eXtremeRAID 2000 Disk Array Controller
Mylex	Mylex eXtremeRAID 3000 Disk Array Controller
Mylex	Mylex AccelerAID 160 Disk Array Controller
LSI Logic Corporation.	LSI MegaRAID IDE 100/MAGNIA Z3x0 Controller
LSI Logic Corporation.	Integrated Ultra ATA-100 Dual Channel Controller
LSI Logic Corporation.	Integrated Ultra ATA-100 IDE RAID Controller
LSI Logic Corporation.	LSI Logic MegaRAID IDE 100 Driver For MAGNIA Z500
LSI Logic Corporation.	LSI MegaRAID IDE 133 Controller
LSI Logic Corporation.	LSI MegaRAID Serial ATA Controller
LSI Logic Corporation.	LSI Logic CSB-6 IDE 100 RAID Controller
LSI Logic Corporation.	Intel Embedded Server RAID Technology
Hewlett Packard	HP NetRAID-3Si
Hewlett Packard	Integrated HP NetRAID
Hewlett Packard	HP NetRAID-1Si
Hewlett Packard	HP NetRAID-1M RAID Controller
Hewlett Packard	HP NetRAID-2M RAID Controller
Microsoft	Microsoft iSCSI Initiator
ICP vortex	ICP RAID Controller
ICP vortex	RAID Controller
IBM Corporation	IBM ServeRAID 4M Controller
IBM Corporation	IBM ServeRAID 4L Controller
IBM Corporation	IBM ServeRAID 5i Controller
IBM Corporation	IBM ServeRAID 4Mx Controller
IBM Corporation	IBM ServeRAID 4Lx Controller
IBM Corporation	IBM ServeRAID 6M Controller
IBM Corporation	IBM ServeRAID 6i Controller
IBM Corporation	IBM ServeRAID 7k Controller
NVIDIA Corporation	NVIDIA nForce4 IntelR Edition Serial ATA Controller
NVIDIA Corporation	NVIDIA nForce4 Serial ATA Controller
NVIDIA Corporation	NVIDIA nForce 430/410 Serial ATA Controller
NVIDIA Corporation	NVIDIA nForce 590/570/550 Serial ATA Controller
NVIDIA Corporation	NVIDIA MCP61 Serial ATA Controller
NVIDIA Corporation	NVIDIA nForce(tm) RAID Class Device
NVIDIA Corporation	NVIDIA nForce(tm) RAID Class Controller

IDE/ATA Adapters

(Standard IDE ATA/ATAPI controllers)	PCMCIA IDE/ATAPI Controller
(Standard IDE ATA/ATAPI controllers)	IDE Channel
(Standard IDE ATA/ATAPI controllers)	Standard Dual Channel PCI IDE Controller
I-O DATA DEVICE,INC.	CBIDE2-LM DuoATA Card (16Bit Mode)
ULi Electronics Inc.	ULi PCI IDE Controller
ULi Electronics Inc.	ULi M5229 PCI Bus Master IDE Controller
Appian Technology	Appian PCI IDE Controller
CMD Technology	CMD PCI-0640 PCI to IDE Controller
CMD Technology	CMD PCI-0646 Bus Master PCI to IDE Controller

CMD Technology	CMD PCI-0648 Ultra DMA IDE Controller
CMD Technology	CMD PCI-0649 Ultra DMA IDE Controller
CMD Technology	CMD PCI-0646U2 Ultra DMA IDE Controller
Compaq	Compaq PCI IDE Controller
Intel	Intel(R) 82092AA PCI IDE Controller
Intel	Intel(R) 82371FB PCI Bus Master IDE Controller
Intel	Intel(R) 82371SB PCI Bus Master IDE Controller
Intel	Intel(R) 82371AB/EB PCI Bus Master IDE Controller
Intel	Intel(R) 82801AA Bus Master IDE Controller
Intel	Intel(R) 82801AB Bus Master IDE Controller
Intel	Intel(R) 82801BAM Ultra ATA Storage Controller - 244A
Intel	Intel(R) 82801BA Ultra ATA Storage Controller - 244B
Intel	Intel(R) 82801CAM Ultra ATA Storage Controller-248A
Intel	Intel(R) 82801CA Ultra ATA Storage Controller-248B
Intel	Intel(R) 82801DBM Ultra ATA Storage Controller - 24C1
Intel	Intel(R) 82801DBM Ultra ATA Storage Controller - 24CA
Intel	Intel(R) 82801DB Ultra ATA Storage Controller-24CB
Intel	Intel(R) 82801EB Ultra ATA Storage Controllers - 24D1
Intel	Intel(R) 82801EB Ultra ATA Storage Controllers - 24DB
Intel	Intel(R) 6300ESB Ultra ATA Storage Controller - 25A2
Intel	Intel(R) 6300ESB Ultra ATA Storage/SATA Controller - 25A3
Intel	Intel(R) 82801FB Ultra ATA Storage Controllers - 2651
Intel	Intel(R) 82801FB Ultra ATA Storage Controllers - 2652
Intel	Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
Intel	Intel(R) 82801FB/FBM Ultra ATA Storage Controllers - 266F
Intel	Intel(R) 82440MX Bus Master IDE Controller
Intel	Intel(R) IA64 Bus Master IDE Controller
Intel	Intel(R) 82801GB/GR/GH (ICH7 Family) Serial ATA Storage Controller - 27C0
Intel	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
Intel	Intel(R) 82801G (ICH7 Family) Ultra ATA Storage Controllers - 27DF
Intel	Intel(R) ICH8 4 port Serial ATA Storage Controller - 2820
Intel	Intel(R) ICH8 2 port Serial ATA Storage Controller - 2825
Intel	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
Intel	Intel(R) ICH8M Ultra ATA Storage Controllers - 2850
PC Technology	PC Tech PCI IDE Single or Dual Port Controller
Silicon Integrated System	SiS PCI IDE Controller
Symphony Labs	Symphony PCI IDE Controller
VIA Technologies, Inc.	VIA Bus Master IDE Controller - 0571
VIA Technologies, Inc.	VIA Serial ATA Controller - 3149
VIA Technologies, Inc.	VIA Serial ATA Controller - 3349
VIA Technologies, Inc.	VIA Serial ATA Controller - 5287
VIA Technologies, Inc.	VIA Serial ATA Controller - 0581
VIA Technologies, Inc.	VIA Bus Master IDE Controller - 5324
VIA Technologies, Inc.	VIA Serial ATA Controller - 0591
VIA Technologies, Inc.	VIA Serial ATA Controller - 5337
VIA Technologies, Inc.	VIA Bus Master IDE Controller - 3164
IBM	IBM Microdrive
Lexar Microsystems	Lexar Media Digital Film Card
SONY	Sony Memory Stick
Standard Microsystems Corp	SMSC SLC90E66 PCI Bus Master IDE Controller

Micron	Micron ATA Flash Card
ServerWorks	OSB4 IDE Controller
ServerWorks	CSB5 IDE Controller
Advanced Micro Devices	AMD-756 PCI Bus Master IDE Controller
Advanced Micro Devices	AMD-766 PCI Bus Master IDE Controller
Advanced Micro Devices	AMD-768 PCI Bus Master IDE Controller
Advanced Micro Devices	AMD-8111 PCI Bus Master IDE Controller
NVIDIA	NVIDIA nForce3 250 Serial ATA Controller
NVIDIA	NVIDIA nForce3 250 Parallel ATA Controller
Standard AHCI 1.0 Serial ATA Controller	Standard AHCI 1.0 Serial ATA Controller

Appendix 2: Third Party Contributions

Third Party Contributions 175

Third Party Contributions

This product contains third party components. Copies of their licenses may be found here:

<http://www.quest.com/legal/third-party-licenses.aspx>.

Component	License or Acknowledgement
libxm2.7.3	MIT
Log4Net 1.2.10	Apache 2.0
OpenSSH 4.5	Open_SSH
SharpSSH 1.1.1.13	SharpSSH 1.0
SharpZipLib 0.85.1.271	SharpZipLib License
TinyXml 2.5.3	zlib/libpng license 1.0

Index

A

About 10

Quest Software 10

C

Continuous Protection

licensing 116

overview 115

procedures 118

Conversion Procedures

Continuous Protection 118

V2P 137

D

Different Destinations Cutover

overview 81

procedures 110

F

Features and functions 23

64k Alignment 26

Cold Conversions 24

Continuous Protection 25

Different Destinations Cutover 26

Hot Conversions 24

Live Log 27

P2V for Linux 23

P2V for Windows 23

Remote Cold Cloning 24

Support for RDM 26

Synchronized Cutover 25

Task Folders 27

Task Profiles 27

User Profiles 27

V2P for Windows 23

Virtual Appliances 23

P

P2V

creating a conversion 82

Linux

configurations 127

overview 19

procedures 128

procedures 100

Windows

overview 17

Q

Quest Software

about 10

R

Remote Cold Cloning (RCC)

overview 79

procedures 104

S

support 11

supported characters

P2V 92

V2P 139

Synchronized Cutover

overview 80

procedures 107

Systems to Convert tab 85

T

technical support 11

text conventions 10

V

V2P

important notes 138

overview 21

preparing target system 139

procedures 137

vConverter 13

about 8

architecture 13

configuration

Conversion tab 47

Email Notifications 48

ESX Servers 53

Task Profiles 59

User Profiles 57

overview 13

user interface 30

Volume Mapping 91